THE

Complete Kitchen Gardener,

AND

HOT-BED FORCER.

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Complete Kitchen Gardener,

AND

HOT-BED FORCER;

WITH THE

THOROUGH PRACTICAL MANAGEMENT

OF

Hot-Houſes, Fire-Walls, and Forcing-Houſes,

AND THE

IMPROVED MODERN CULTURE

OF THE

Pinery-Stoves, and Pine-Apples,

BEING

A thorough practical Diſplay of theſe moſt capital Branches of Gardening in their General Culture, and agreeable to the preſent greatly improved modern Proceſs; whereby that moſt importantly-uſeful Diſtrict the KITCHEN GARDEN, and all its Appurtenances of Hot-Beds, Hot-Houſes, Hot-Walls, Forcing-Houſes, Pinery-Stoves, &c. and the Culture of their ſeveral various Productions in ſuperior Perfection and greateſt Abundance, are fully explained in a Manner never before done for general Inſtruction, as requiring a particular diſtinct Explanation; and now firſt completely accompliſhed, from the Reſult of above Forty Years daily practical Experience and Obſervation.

By JOHN ABERCROMBIE,

Author of *Every Man his own Gardener*, commonly called *Mawe's Gardener's Kalendar*; but the work of J. A. only.

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Jos: Banks

PREFACE.

IN the many books of Gardening now extant, the Kitchen-garden, and its numerous uſeful plants, and the culture thereof, having been moſtly blended with the general buſineſs, and the various other plants, trees, &c. of horticulture, and often in ſmall detached portions in different parts of ſuch general works of gardening, that the thorough practical culture could not readily be traced, or any particular part thereof, when wanted to conſult on any neceſſary occaſion; nor in that order of arranging the matter, could the complete general culture be effectually diſplayed in the requiſite practical manner; and therefore, as this branch of Gardening may be conſidered as the moſt general and materially uſeful, it was thought adviſable to undertake the preſent Work, treating wholly on the Kitchen-garden, in which all the different ſpecies are diſplayed, each under a diſtinct or ſeparate head, deſcribing the nature of growth, utility, general and particular uſes, and thorough practical culture of each, through its ſeveral ſtages of growth, till advanced to full maturity; together with complete practical directions for performing all the different operations, explaining alſo all the different ſorts of tools, implements, and every requiſite material relative to the Kitchen-garden, as more fully mentioned in page 447, &c.

Newington, Surry,
Oct. 25, 1788.

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C O N T E N T S.

THE COMPLETE

KITCHEN GARDENER.

A KITCHEN GARDEN being the moſt importantly uſeful and neceſſary diſtrict of gardening for furniſhing the numerous valuable eſculent crops for the ſupply of a family at all ſeaſons of the year, the culture thereof, and of the various plants, roots, herbs, &c. require a particular diſtinct explanation, agreeable to thorough practice, which in the following pages is now fully accompliſhed: all the different plants, &c. in their ſeveral requiſite crops, being comprehenſively treated of, under ſeparate heads, deſcribing the nature of growth and temperature, reſpective uſes, general and occaſional ſeaſons of perfection, the number of crops neceſſary, the requiſite ſupply in larger or ſmaller crops, and the whole complete practical culture of every plant ſeparately in its particular and different ways of propagation, ſowing, planting, raiſing, and general management through all its ſeveral ſtages of growth, from the ſeed, ſlips, off ſets, cuttings, &c. in regular progreſſion, to full maturity, whereby to obtain the various eſculents in the greateſt degree of perfection and abundance, both in the general natural ground crops and early and tender articles in hot-beds, forcing houſes, hot-houſes, &c. and which could only be effected by this mode of proceeding; as in books of general

gardening, in which the kitchen garden plants are blended with the various other articles, they are treated of too ſlight and ſuperficially, often in many detached portions, and frequently very defective and erroneous, that the true practical culture in general has not been fully explained as in the preſent work.

A kitchen garden being generally laid out in outward borders and large internal quarters; a border being commonly formed along the walls, hedges, or other fences, five or ſix, to eight, ten, or twelve feet wide, with ſometimes a border four, five, or ſix feet wide ſurrounding the main quarters, eſpecially in family gardens; the warm ſouth borders under the walls ſerve for early crops, the north and ſhady borders are convenient for particular ſmall crops in ſummer, and the others ſerve alſo for ſowing, pricking, and planting crops of many ſorts of ſmall plants at any ſeaſon; and the internal large compartments always allotted for the general great crops at all times of the year.

In preparation of the kitchen ground for the reception of the various crops, the eſſential buſineſs is, proper digging and trenching once every year at leaſt, or for every principal new crop in ſeeds or plants, and to give neceſſary augmentations of dung at leaſt once in two or three years at fartheſt, according as the ground is exhauſted by repeated production of heavy crops, though where dung is plenty a manuring every other year will ſupport the ground in good heart to produce finer crops in proportion.

Digging and trenching for the general crops ſhould be performed in autumn, winter, and ſpring, according as the ground becomes vacant, or occaſionally in ſummer for immediate cropping; always going one full ſpade for common crops, and for the long roots, as carrots, parſneps, &c. two ſpades deep is eligible; and generally in the above ſeaſons, winter and ſpring, dig the ground, by trenching two or three ſpades wide, throwing the earth up in rough ridges lengthways, each trench to lie fallow to improve its fertility by the weather, till wanted for ſowing and planting; then can be expeditiouſly levelled down, which, by again ſtirring

and

and breaking the ſoil, will add to its further improvement for the greater benefit of the crops.

Thus far being only ſome general introductory remarks, the particulars of the deſcription, general uſes, and practical culture of the various plants is fully explained, each under its reſpective head; alſo after the general directions of the culture of the different articles is explained, under ſeparate heads, all the ſeveral operations neceſſary in the cultivation of the ground in preparation, by digging, trenching, manuring, hoeing, and different methods of ſowing, planting, tranſplanting, pricking-out, and of performing all the other practical works, and every requiſite material relative to the kitchen garden, with full explanations of hot-bed culture, forcing-houſes, hot-walls, hot-houſes, and moſt ſucceſsful methods of raiſing therein various early plants and fruits; containing alſo the completeſt improved culture of the pine-apple, whereby to raiſe that admired fruit in the greateſt perfection.

Firſt follow the directions for raiſing the various kitchen garden crops, each deſcribed under its proper head, in which they are arranged by the general Engliſh and botanic name, in the following order:

CAULIFLOWER.

A variety of the Cabbage tribe (Braſſica Cauliflora), Cauliflora, *or Cauliflower.*

THE CAULIFLOWER is an annual plant of the cabbage family, of great eſtimation for its large central white head, compoſed of the numerous advancing flower buds in a compact cluſter, being the eatable part of the plant, boils excellently white, tender, and delicate to eat; the principal ſeaſon of perfection, May, June, and July; but is alſo obtained in ſucceſſion all ſummer, autumn, and in winter till near Chriſtmas, though in an inferior degree in ſize and cloſeneſs of the head; all raiſed from ſeed annually in three or four crops, ſowed in Auguſt to ſtand the winter for the early and main

crops next ſummer; and a ſpring and ſummer ſowing for ſucceſſional and late ſummer crops the ſame year in autumn and winter; each crop for tranſplanting two feet and a half, or a yard diſtance, and after the heads attain full growth, they ſoon open and run to ſtalks for ſeed, which however ripens only in the early flowering plants, in September, and all the plants wholly die the ſame ſeaſon.

The varieties of cauliflower are,

Early cauliflower.

Large late cauliflower.

Cauliflowers ſhould be cultivated in conſiderable ſupplies, eſpecially the principal crops for ſummer conſumption, they affording very ſerviceable and profitable crops, both for ſupply of private families and for ſale in the markets.

They may be obtained in ſucceſſion three or four months, or more, in ſummer and autumn, &c. or occaſionally from May and June to November or December; but always in the moſt ultimate perfection in ſize and cloſe white heads in May, June, and July, which are the general early and main crops, raiſed by ſowing the preceding year towards the latter end of Auguſt, and planted in frames and hand glaſſes in October to ſtand the winter in their young growth till March, when thoſe in the hand-glaſſes remaining for early production, all thoſe in the frames are then planted out for the main crops; and the others for ſucceſſion ſupply are raiſed in the ſpring, March, April, and May, for late ſummer, autumn, and winter cauliflowers.

The different crops of cauliflowers ſhould be allowed compartments of the richeſt moderately-light ground, in a free ſituation, well manured with rotten dung, and this digged in regularly a ſpade deep.

Where a regular ſucceſſion of cauliflowers is required, they may be raiſed in three different crops, in the following order, viz. 1. The general early and main crops; 2. the late ſummer and autumn crops; 3. the Michaelmas or late autumn and winter crops; but of which ſeveral crops, the firſt furniſhes the ſuperior productions in the fineſt large cloſe heads in the principal

cipal ſeaſon of cauliflowers, May, June, July, to the beginning or middle of Auguſt; and if a longer ſucceſſion is deſired, it may be obtained by continuing to raiſe the other two above-mentioned crops, thereby have a regular ſupply of cauliflowers from May till December. See the culture of each crop under its ſeparate head, viz.

Firſt, the general early and main Summer Crops.

To obtain early and main ſummer crops of cauliflowers to produce their heads in the principal ſeaſon of the greateſt perfection, in May, June, July, Auguſt, the ſeed muſt generally be ſowed the year before in autumn, towards the latter end of Auguſt; for the plants to ſtand the winter in their young growth, by planting ſome under hand-glaſſes in October, finally to remain, four or five under each glaſs, and the reſt pricked in frames, arched beds, and warm borders, at the ſame time; all to ſtand over the winter in their infant ſtate, and protected from ſevere froſt till the latter end of February, or any time in March. Then all thoſe in the frames, &c. tranſplanted finally into the open ground; alſo part from under the hand glaſſes to two beſt plants in each.

Therefore obſerve, the proper ſeaſon for ſowing this general early and main ſummer crop is from about the 18th to the 21ſt or 24th of Auguſt, not ſooner nor later. Mark this; otherwiſe, if ſowed before that period, the plants will get too forward, and be apt to run in winter in their young growth to ſmall button heads of no value, and be diſappointed of the ſummer crop; and if ſowed later, they will not acquire ſufficient ſtrength before the approach of cold weather; or at the above period it may be eligible to ſow a portion of ſeed at two different times, at three or four days interval, to have the greater chance of good ſucceſs in a plentiful ſupply of proper plants for the early and principal crops; prepare for this purpoſe a four feet wide bed or beds of rich light earth, break the ſurface tolerably fine, and laying it regularly even, directly, while the earth is freſh ſtirred, ſow the ſeed on the ſurface, moderately

thick, and rake it in evenly, afterwards with a ſpade ſpread a little fine earth over very thinly to cover all the ſeed effectually, and ſmooth it off lightly with the ſpade, if very dry weather, that it may retain the moiſture; or, in ſowing, firſt rake the ſurface fine, ſow the ſeed, ſmooth it down lightly with the back of the ſpade aforeſaid, and then ſift fine light earth over it, a quarter to about the third of an inch deep. See the article *Sowing*.

The ſeed thus ſowed, give occaſional light waterings in dry weather, and, if a hot dry ſeaſon, a ſlight ſhade of garden mats in the middle of ſun-ſhining days will prove very beneficial, by keeping off the ſcorching heat, and preſerving the moiſture, whereby the ſeed will ſprout freely, and the plants come up regularly together: after which expoſe them fully; or, if a ſhowery time, watering or ſhading will not be required.

When the plants are come up, if dry hot weather, they ſhould be frequently watered moderately, to forward them in a regular free growth to a proper ſize for pricking out in September, &c. that they may obtain due ſtrength before the commencement of winter or cold weather.

Or if, while they remain in the ſeed-bed in September, exceſſive wet or very cold nights prevail, and the plants rather ſmall or weakly, it would be of advantage to place a frame or frames over the bed, in order to defend the young plants with the glaſſes only juſt in the time of inceſſant great rains, which is apt to make many of them grow black ſhanked; but otherwiſe expoſe them fully to the open air in this period of their growth, that they may advance with proper ſtrength.

About the middle or towards the latter end of September, when the plants in the ſeed-bed are advanced in growth with two or three leaves an inch or more broad, proceed to prick out all the beſt into beds of rich light earth, to gain ſtrength till the middle or end of October, either for final tranſplanting at that time, ſome under hand-glaſſes, others in frames, where they are to remain to have occaſional protection all winter; or ſome thus pricked at once from the ſeed-bed into the compartments and beds where they are to continue during that

ſeaſon,

ſeaſon, be defended with hand-glaſſes and frames aforeſaid; preparing for theſe purpoſes, of pricking out from the ſeed-bed, one or more beds of rich light earth, in a warm ſituation, four feet or four and a half wide, well digged, and the ſurface raked fine: then drawing the plants from the ſeed-bed with full roots, rejecting ſuch as are very weak, crooked, or black ſhanked, trim the ends of the extreme root fibre, and prick them in the new beds in croſs rows, four by three inches aſunder; directly watered; and if hot ſunny weather, it will be of advantage to ſhade them with a garden mat in the heat of the day, till they have taken good root and begin to grow, repeating the waterings moderately till they attain a growing ſtate.

Thus in theſe pricked out beds, giving occaſional waterings, the plants are to remain to advance to a proper growth and ſtrength till the middle or latter end of October, then to be tranſplanted into their winter beds, ſome under hand-glaſſes, the reſt in frames, or ſome in arched beds for covering with mats as hereafter directed.

Or in pricking or planting out from the ſeed-beds, if the ſeedling plants are of tolerably ſtrong growth toward the latter end of September, as above-mentioned, part may be pricked or planted at once into beds in a warm ſituation, to continue during the winter, ſome of which, for the hand-glaſs crop, planted in an open quarter of ground, and protected with hand-glaſſes at firſt planting, till they take good root, and afterwards in all very rainy, cold, or bad weather; the others planted in beds, to have protection of frames and lights, mats, &c. in that ſeaſon, or occaſional ſhelter before that time, if in the interim very cold nights, froſts, or exceſſive rains happen, but otherwiſe fully expoſed day and night in all moderate weather till November, or the commencement of the cold ſeaſon, then to have the neceſſary protection, as explained in the winter culture.

However, let it generally be obſerved, that in the middle, or towards the latter end of October, or beginning of November at lateſt, all the above young plants not finally pricked or planted in September into the

beds where they are deſigned to ſtand the winter, ſhould then be tranſplanted therein, which ſhould be then prepared in rich lightiſh ground, in a ſheltered ſituation open to the full ſun, ſome to be planted in the main quarters of ground, in wide rows finally to remain, and have protection of the hand-glaſſes, the others pricked cloſe in beds to have ſhelter of frames and lights occaſionally in winter for tranſplanting into the open ground in the ſpring; and ſome alſo, if required, in a bed or border, to be defended with garden mats in ſevere weather, to preſerve them for planting out alſo in that ſeaſon.

Obſerving therefore, firſt, with regard to planting the hand-glaſs crop, where intended, at the above-mentioned time, beginning, middle, or latter end of October, according to the advanced growth of the young plants, or at lateſt the beginning of November, if not done before; a quantity of the beſt plants of ſtrongeſt robuſt growth ſhould be then tranſplanted into a quarter of good ground, under the hand glaſſes, finally to remain for the earlieſt crop; and for which allot a compartment of rich ground; this augmented with a good coat of rotten dung, and neatly digged in one ſpade deep, then divide the ground into three-feet-wide beds, with foot-wide alleys between them, to admit of paſſing between the beds to give the neceſſary culture, raking the ſurface of the beds even; and being furniſhed with proper hand-glaſſes of the larger ſize, either leaded ſquare ones, or bells, but the latter are preferable for the beſt preſervation of the plants [See *hand glaſſes*], place them in a row along the middle of each bed, a yard aſunder, and then plant four to five or ſix cauliflowers under each glaſs towards the middle, five or ſix inches aſunder, though only two are to remain finally in the ſpring; give directly a moderate watering, out of a pot with the roſe or head on, and immediately ſet the glaſſes over the plants, and placed down cloſe, to expedite the plants taking freſh root, and till they diſcover ſigns of renewed growth, when let the glaſſes be propped up on the warmeſt ſide two or three inches, to admit air, that the plants may ſtrengthen and not draw

on

on too fast and weak, and may occasionally in fine temperate dry days be set off for a few hours, especially if the plants get forward; otherwise, if in a moderate growth, the taking off the glasses is not materially necessary, or rather be mostly continued over the plants, and never taken off in very wet weather in the winter season; but always admit plenty of air, by tilting the south side of the glasses in all mild weather, as above remarked, not kept close at such times to draw the plants on too fast, which would weaken and render them tender, and by bringing them forward in growth might occasion many of them to run or button; the glasses, however, always kept close down in frosty and snowy weather, and very cold nights; and thus they are to remain under protection of the hand-glasses all winter, till the spring, when, about the middle or latter end of February, or beginning of March, two of the best plants being sufficient to remain under each glass, all the rest to be then transplanted into the open ground, to come in for a succession crop to succeed the hand-glass cauliflowers. See the spring culture.

In planting the above crop of hand-glass cauliflowers, many of the market gardeners in the vicinity of London, who cultivate great quantities, set out the beds for the ranges of hand-glasses at ten feet distance, in order to have in the intervals, first a crop of radishes and spinach mixed together, sowed in the spring, about February, to come off in May; then in the same spaces of ground have ranges of hot-bed ridges in trenches, for cucumbers, each about a yard wide, ranging longways, the middle of the intervals between the cauliflowers: and the glasses which served for the protection of the cauliflowers in winter and spring are now at liberty to place over the cucumber plants, ridged out as above in holes or spaces a yard distance along the middle of each ridge, one glass for each hole of plants.

The frame cauliflower plants, or those designed for wintering in frames, and in arched beds defended occasionally with mats, and that were pricked into nursery-beds in September, are in the middle or latter end of October, or not later than the beginning of November,

to have the proper preparations for their winter protection with the frames and glaſſes, &c. either in the beds where they now ſtand, or if they are rather forward in growth, or were not pricked at firſt in the proper beds intended for their winter reſidence, or that if they ſtill remain in the ſeed-bed, it is proper at the above time to tranſplant them into the requiſite beds, borders, &c. in which to continue till the ſpring; and for which prepare one or more beds of light rich earth, four feet and a half wide, ranging longways eaſt and weſt, full in the ſouth ſun; rake the ſurface ſmooth, and marking out on the beds the proper width of the frames intended to place thereon, then proceed accordingly to prick out the plants deſigned, drawing them out of the preſent beds with good roots, pick off any decayed or broken under leaves, then prick them in croſs rows, four by three inches diſtance, give a light watering, and ſet on the frames and glaſſes, keeping the glaſſes cloſe for a week or more, to promote the plants taking root more expeditiouſly, and ſooner commence a freſh growth before the approach of ſevere weather; then admit air, firſt, either by ſliding down the glaſſes or tilting them behind two or three inches, afterwards drawn off entirely to the back of the frames in dry mild days, but moſtly kept on of nights, and always in froſts, ſnow, and all very cold cutting weather, and when much rain; but be fully expoſed in all temperate and moderate dry days; for they require only to be defended in bad weather as above, and have the free air conſtantly when mild, otherwiſe would draw weak and tender, and ſometimes run them to ſmall button flowers in winter.

Sometimes for the plants deſigned to be pricked in frames, or arched beds, in the end of October or beginning of November, as above, if they are rather weakly or backward in growth, and the ſeaſon ſet in very cold, a ſlender hot-bed is made, fifteen or eighteen inches depth in dung, and earthed ſix or eight inches. The plants pricked therein, and the glaſſes put on; it will forward their more expeditious rooting and growing ſtate, before the commencement of rigorous weather.

Where

Where frames, &c. for the above plants, are either not in ſufficiency, or entirely unprovided with ſuch, a quantity may be pricked in a bed of rich earth, in a warm ſituation, and arched over with hoops or rods, to be covered with mats in cold nights, and all bad weather. Alſo ſome may be pricked cloſe under a ſouth-wall or hedge, and, in ſevere froſt, defended with garden mats, reed pannels, or dry long litter, and planted out in the ſpring.

During the winter, the cauliflower plants, in their reſpective winter reſidences, as above, muſt be carefully attended, to defend them in cold nights, froſts, ſnow, and much rain, with the glaſſes, &c. but, in all open, moderate weather, be ſure to admit plenty of free air daily, otherwiſe they will draw up weak: the hand-glaſſes propt up on the ſouth ſide one, two, or three inches, or occaſionally taken off in mild dry days, if the plants are very forward in growth; but always put on of nights, and ſhut down cloſe in froſt, and other cutting weather: and the frame plants, and thoſe under arches and mats, have the lights and mats taken off every dry mild day; or, if very wet, but open weather, kept on, and the glaſſes tilted behind, two or three inches; and, in the arched beds, the mats turned up in the front; for, in open weather, theſe plants ſhould enjoy the air freely; not to run them on in growth at this ſeaſon, otherwiſe they will get too forward, and flower in ſmall button heads: pick off all decayed leaves that occur, and deſtroy ſlugs, which, at this ſeaſon, often invade thoſe plants; being moſt careful, in froſty weather, to keep all very cloſe; and, when very rigorous froſt, defend the tops of the glaſſes, and round the ſides, with dry long litter; alſo the ſides of the frames, and over the mats in arched beds, &c. Likewiſe any that are in borders under ſouth-walls, protect, in ſevere froſt, either with mats, long litter, or with reed pannels, placed ſlanting againſt the wall, over the plants.

Thus the plants are to be preſerved all winter for planting out in the ſpring; part from the hand-glaſſes,

and all thoſe in the frames and other beds, planted out entirely.

But obſerve, in January or February, if, by the ſeverity of the winter, the plants are moſtly killed, or that where none were raiſed in autumn to ſtand the winter, ſow ſome ſeed in a moderate hot-bed; and the plants, when they have leaves half an inch, or inch broad, pricked into another hot-bed, or in a frame or warm border, and covered in cold nights and ſevere weather, to raiſe them to a proper growth for planting out in April, to ſupply the place of the winter plants.

In the ſpring, towards the latter end of February, if quite mild weather (not elſe), or any time in March, or beginning of April at lateſt, prepare to plant out the cauliflowers from their winter beds into a quarter of rich ground, augmented with rotten dung, digged in a ſpade deep: obſerving in the hand-glaſs crop to ſelect two of the beſt plants to remain under each glaſs: draw out all the reſt, and, if any deficiencies in that crop, make them good with ſome of thoſe drawn out, or from the frames; drawing ſome earth about the ſtems of the remaining plants in the hand-glaſſes; the reſt of the plants taken from under thoſe glaſſes, and all thoſe in the frames, and other beds, borders, &c. are to be planted out into the full ground, prepared as above, in rows two feet and half, or a yard, ſquare; give a little water at planting, and occaſionally afterwards, in dry weather, till they take root and grow.

To gain ground, where neceſſary, a crop of radiſhes and ſpinach, mixed, may be ſowed in the ſame ground with the cauliflowers either a week, or fortnight, or more, before or after they are planted, or at the time of planting them, as may be convenient; which crops will come off in due time, in May and beginning of June, without impeding the growth of the cauliflower plants.

If, after the cauliflowers planted out as above in the open ground, in the ſpring, ſevere froſts, or ſharp cutting weather, unexpectedly occur ſoon after planting, as is ſometimes the caſe at that ſeaſon, it would be of great advantage to afford them ſome protection, where convenient, either by placing ſome ſpare hand-

glaſſes

glaſſes over as many as poſſible, or a quantity of ſmall garden-pots (32's), whelming one over each plant every night, or alſo in the day time, if ſharp froſts prevail; and thus continued till the weather is mild; then removed.

The hand-glaſs cauliflowers, now in the ſpring, remaining under the ſaid glaſſes, ſhould have theſe continued till the beginning, middle, or towards the latter end of April, according to the advanced ſtate of the plants, and temperature of the ſeaſon; obſerving, however, at this time, when the plants are ſomewhat conſiderably advanced in their ſpring growth, to raiſe each glaſs, all round, upon three props, three or four inches high, to give a larger portion of free air, and ſufficient ſcope for the plants to grow freely, with proper ſtrength, and hoe up a little earth round the ſtems of each plant; and the glaſſes being thus continued, they will forward the plants conſiderably for early flowering; but according as they advance to a larger ſize, it is adviſeable to draw a ſmall border of earth, two or three inches high, round thoſe of each glaſs, and on which to place the props, to raiſe the glaſſes ſtill higher, to admit of full room for encreaſing growth; and, at this ſeaſon, it is proper to expoſe the plants fully to the benefit of moderate warm rains: and when they have quite filled the glaſſes, remove theſe entirely away. This crop comes in earlieſt, producing their heads in May and June.

In the ſucceſſion-cauliflowers, planted out in ſpring from the frames, &c. and hand-glaſſes, into the open ground, for the general ſummer crops, give proper attendance in their advancing growth, in May and June, to hoe the ground between them, to cut down weeds, and looſen the earth about the plants, and to hoe up ſome earth round the bottom of the ſtems to encourage their growing to a large ſize, that they may produce large full heads in proportion in June and July, and till the beginning or middle of Auguſt, to ſucceed the early crops of hand-glaſs cauliflowers.

In dry hot weather, in May and June, when the plants are well advanced, two or three good waterings will

will prove beneficial in increaſing the ſtrength of the plants, to produce large full heads accordingly.

According as the flower heads appear in May, June, July, &c. break down ſome of the leaves over them, to defend them from the ſun and rain, to preſerve them white and cloſe.

If any cauliflower plants were raiſed early in the ſpring in hot-beds, &c. as was directed in caſe of failure, or in default of winter-ſtanding plants, or for ſucceſſion, they ſhould be planted out in April or beginning of May, giving occaſional waterings till they take root and grow: theſe will produce flowers in July and Auguſt, either to ſucceed the general crops, or as a principal crop where no others were raiſed.

Succeſſion, late Summer and Autumn Crops.

To continue a ſucceſſion for late ſummer and autumn cauliflowers, to ſupply the table from July and Auguſt to September, or, in default of autumn-raiſed plants, a moderate portion ſhould be ſowed in the ſpring, about January, February, or March, in a ſlight hot-bed, or, in default thereof, in a bed of natural earth, under a frame and glaſſes, or in a warm border, and defended in cold nights, froſts, and bad weather; and when the plants are a little advanced with leaves half an inch or inch broad, prick ſome into another hot-bed, where convenient, three inches aſunder; or, for want of this, in a natural bed, or warm border, and defended with a frame and lights, or, where theſe are wanting, protected in cold weather, and every night, with mats, till they increaſe in ſtrength, and the temperate ſpring weather commenced: then, about the middle or end of April, or beginning of May, according to their advanced growth, plant them out finally in a compartment of rich well-dunged ground, in rows two feet and a half ſquare; watered at planting, and, occaſionally, till freſh rooted and begin to grow; giving neceſſary hoeings to deſtroy weeds, and earth up the ſtems; and they will produce heads, the earlieſt plants probably the end of June, the others, in July and Auguſt.

In

In April, ſow a ſmall portion of more ſeed in a warm border or bed of rich earth, the young plants pricked out as above, to gain ſtrength for a month, and then finally tranſplanted, when rain falls, the latter end of May or beginning of June; they will ſucceed the others in production, about Auguſt and September, in ſmall heads.

Though theſe ſpring-ſowed plants do not generally produce ſo large cloſe heads as the autumnal-raiſed winter-ſtanding plants; nor are the late crops ſo large, cloſe, and fine, as thoſe in June and July.

Michaelmas and Winter Crop.

To have cauliflowers late in autumn, about Michaelmas or October, to November and December, the ſeed muſt be ſowed the latter end of May, to raiſe the plants for final tranſplanting in July, as directed below.

Sow the ſeed for this crop about the 24th of May (obſerve the time), in a bed of rich light earth, in an open ſituation; and in June when the plants are advanced with leaves, one or two inches broad, prick them into other beds, ſix by four inches aſunder, watered, and occaſionally ſhaded from the mid-day ſun, if dry parching weather, till they take good root; where permit them to continue encreaſing in growth and ſtrength until the middle or towards the latter end of July; then finally planted out, and, if ſhowery weather, it will be of particular advantage; allotting a compartment of rich ground in the moiſteſt ſituation, and where plant them in rows two feet and a half ſquare; watered at planting, repeating it, if dry weather, till they take root, and begin to grow, and occaſionally afterwards, if a dry hot ſeaſon. Or, to gain ground, ſome may be planted between any rows or beds of plants that will ſoon be cleared off; or between any ſmall remaining crops; or between the ridges of cucumbers made in the intervals of the early hand-glaſs cauliflowers, if any were planted wide for that purpoſe, as practiſed in the kitchen gardens about London.

According as they advance in growth, in Auguſt and September, give occaſional hoeings to keep down weeds,

and to looſen the ground, and draw earth up round the ſtems moderately, to forward and ſtrengthen the plants to an eligible ſize to produce large heads.

They will begin to head, ſome the end of September, but principally in October, and continue heading in gradual ſucceſſion all that month, and November till December, or ſometimes till near Chriſtmas.

Cauliflowers for Seed.

To ſave cauliflower ſeed, generally in May, June, or beginning of July, when the early and firſt main crops are in full perfection in their production of large cloſe flower heads, mark and leave ſome of the prime, largeſt, cloſe-headed flowers, principally of the early hand-glaſs crop, or the forwardeſt of thoſe tranſplanted from the frames in the ſpring; the others, of later growth, will ſeldom be forward enough to head and flower in proper time to ripen ſeed effectually: before attacked by the wet, cold, and mildew, in autumn, eſpecially in unfavourable ſeaſons, in which the ſeed ſometimes do not ripen till late in September; permitting the heads of thoſe marked for this purpoſe to remain, they, after acquiring full ſize in their cloſe growth, will ſoon divide and run up to ſtalks, flower in July and Auguſt, and ripen ſeed in the middle or latter end of September; when be particularly careful to drive away the birds, which, at that time, would ſoon do great miſchief; and, when fully ripe, cut off the ſeed branches according as it ripens, and placed in the full ſun, to harden the ſeed, and dry and make brittle the huſks or ſeed-pods, that they may open or break freely to eject the ſeeds in threſhing; then beat or threſh it out, cleaned from the huſks, &c.; ſpread it then upon cloths in the ſun a day or two, to dry thoroughly, and then put up in bags or boxes for next year's ſowing.

Obſerve, this ſeed is generally in beſt perfection for ſowing when not more than a year old.

CUCUMBER.

In the Botanic Syſtem, Cucumis, (Cucumis ſativus), *or cultivated Cucumber.*

THE CUCUMBER is a moſt tender annual plant, of long, trailing, climbing, growth, producing its fruit at the joints of the runners as they advance in length, in ſpring, ſummer, &c. from February or March, till September or October; proper for uſe principally in their young green ſtate, of from about three or four to five or ſix inches length, both to ſlice and eat raw, and for ſeveral culinary purpoſes, mangoes, &c. alſo of a ſmaller growth, of one, two, or three inches long, to pickle; the plants always raiſed from ſeed, ſowed in winter, ſpring, and ſummer, for early, general, and late crops; and, being very tender exotics, require to be raiſed in hot-beds in their early culture in January, February, and March, to the end of May or the beginning of June, then are ſowed in the natural ground for late production; the hot-bed crops being generally raiſed in a ſmaller hot-bed for final tranſplanting into a larger; and the natural-ground ſowed plants to remain principally where ſowed; all of which arrive to a fruiting ſtate in eight, ten, or twelve weeks, and continue bearing ſeveral months, in the different crops, till September or October, then wholly die, top and root.

The varieties of cucumbers are,

The early ſhort prickly cucumber.
early ſhort cluſter cucumber.
early African cucumber.
early long prickly cucumber.
common long prickly cucumber.
white prickly cucumber.
white Dutch cucumber.
long, green, Turky cucumber.
long, white, Turky cucumber.

Of theſe varieties, the early ſhort and cluſter prickly cucumbers have merit principally for their earlieſt production,

duction, quick and plentiful bearing; though, as the fruit is ſhort, and much inferior to the long prickly kinds, a ſmall crop only ſhould be raiſed for the earlieſt production: and the long prickly being fine handſome ſtraight fruit, five or ſix to eight or nine inches long, and good bearers, are ſuperior to all the others for the principal crops, both in hot-bed culture, and in the natural ground crops; but the white Dutch and Turky cucumbers, although they grow very long and large, being both indifferent bearers, and inferior to the others for eating, are not eligible to cultivate for any principal ſupply, only a few for variety, or where required to have large cucumbers for ſtewing, or mangoes, &c.

All the varieties are very tender exotics, that require the aid of artificial heat of hot-beds, and hot-houſes, &c. except in two or three months in the heat of ſummer; and that when required in early production, or even any time from February or March till July, they muſt be raiſed in hot-beds under frames and glaſſes till the beginning or middle of June; then, as the weather will be ſettled and warm, they will bear to be expoſed to the open air; and likewiſe in the end of May or beginning of June aforeſaid, they admit of ſowing and planting in the full ground, but theſe will not arrive to bearing till the beginning of Auguſt, and finiſh their production principally by the middle of September: ſo that when intended to have cucumbers to cut in the ſpring, and early and principal part of ſummer, it can only be effected by culture in hot-beds, under frames and lights, hand-glaſſes, &c. or occaſionally in a hot-houſe; and by which aſſiſtances, of artificial heat, cucumbers are obtained ſo early as February, March, or April, and in continuance till the end of July or Auguſt, till the natural-ground crops, ſowed in May or June, arrive to bearing; or will continue in production all ſummer and autumn till September, in the late crops, eſpecially if occaſionally defended in that ſeaſon, in very wet or cold weather.

As cucumbers in their full culture, for early and late production, are commonly raiſed in three principal crops, that is, by hot-beds under garden frames for the early

early crops, made any time from December, January, or February, till May; by hot-beds, under hand or bell glaſſes, in April, May, and beginning of June; for a principal ſummer-crop, to produce from June till Auguſt; and in the natural-ground, without hot-beds or glaſſes, in the end of May and beginning of June to produce fruit in autumn, about Auguſt and September, for picklers and other occaſions at that ſeaſon. Each method is explained under its ſeparate head.

Their Culture by Hot-beds under Frames and Glaſſes.

For the early crop of cucumbers, the ſeed may either be that of the early ſhort or long prickly kinds; the former will probably be earlieſt in fruiting, but the latter is conſiderably the fineſt fruit; and, of either of which, generally prefer ſeed of two, three, or four years old to new, as the plants will not run ſo luxuriantly to vine as thoſe of new ſeed, and therefore commonly ſhew fruit conſiderably ſooner, and more abundant.

When intended to raiſe cucumbers early to produce fruit for cutting in February or March, a ſmall crop may be ſowed in a hot-bed the latter end of December, about Chriſtmas, or beginning or middle of January; but, for a more certain and plentiful early crop to cut in March, April, and May, the middle or latter end of January, or beginning of February, is a proper ſeaſon to begin; though, where there is not good plenty of proper hot-bed dung, both for making the hot-beds, and ſupporting them afterwards in a proper degree of heat, by lining the ſides with the ſame kind of dung, when the heat of the bed declines, it is more adviſeable to defer ſowing till February or March; or, where not required very early, only for a good ſummer crop, the beginning, or any time in April, may to many be time enough, eſpecially where hot dung is ſcarce, as aforeſaid; for without a proper ſupply of this article, to keep the beds to a regular degree of heat during the continuance of cold weather, or till June, very little ſucceſs will enſue in the culture of theſe tender exotics.

For

For making the hot-beds, horſe-ſtable dung is the principal article, conſiſting of the warm, moiſt, long and ſhort litter, and dunging of the horſes together, as cleared out from the ſtables where horſes are conſtantly kept, to the dung-hill, &c. and which ſhould be provided in proper ſupplies, according to the quantity or extent of hot-beds intended for this purpoſe: Firſt, to make a ſmall hot-bed, as a ſeed and nurſery-bed, in which to ſow the ſeed, and raiſe the plants of two, three, or four weeks growth; and then a larger bed for one or more common garden frames, wherein to finally tranſplant them from the ſeed-bed, to remain for fruiting; and likewiſe, beſides that for making the hot-beds, ſmaller portions of dung muſt alſo be provided in readineſs for lining the ſides of the beds, to augment and revive the declining heat occaſionally.

In providing dung for theſe hot-beds, prefer that which abounds in a moiſt, lively, ſteamy heat, the long and ſhort together; fork it up in a heap or ridge, in a mixed order, to remain a week or fortnight; to prepare the whole of an equal temperature of heat; and that the rank noxious ſteam and burning quality may paſs away, turning it over once or twice, which will more effectually reduce it to a proper ſtate for making into a bed, productive of a kindly moderate heat, in which the plants will grow proſperouſly.

Likewiſe for theſe hot-beds have an eligible quantity of the beſt rich light earth ready prepared in autumn in a heap or ridge to improve and lie dry, or a compoſt of mellow rich garden mold, light ſandy ſurface loam and rotten dung, previouſly prepared in an heap ſeveral months before, frequently turned over, and well blended together; and for early hot-beds be careful to have the earth moderately dry, for this is of much importance in winter or early ſpring months; and at which ſeaſons it would be of much advantage to have a quantity laid in a covered ſhed for a week or fortnight, or more, to dry of a proper temperature.

And of garden frames to place on the hot-beds, it is neceſſary to have two or more different ſorts; that is, a ſmall one, of one or two lights, for the firſt or ſeed hot-

bed,

bed, in which to ſow the ſeed and raiſe the plants to a proper ſize for tranſplanting, and one, two, or more, as required, larger frames of three lights for the large hot-beds, wherein to tranſplant the cucumbers to remain for fruiting.

Alſo be furniſhed with garden mats for covering the glaſſes of the hot-bed frames of nights and bad weather. The large Ruſſia mats are the beſt for this purpoſe, which may be obtained of moſt of the nurſerymen and ſeedſmen.

Then with regard to making and management of the hot-beds, allot them a warm, dry, ſheltered ſituation, fully expoſed to the whole day's ſun, for this is very material; and generally let them be made entirely on level ground at an early ſeaſon, both that the bottom may be dry, not liable to be chilled by ſtanding water, and that there may be an opportuuity of lining the ſides of the bed with freſh dung occaſionally quite from the bottom, to renew the heat when declined.

Firſt make a ſmall hot-bed for a one or two light frame, a yard, or three feet and half high in dung, in which to ſow the ſeed and raiſe the plants to a proper growth for tranſplanting; and as ſoon as made, ſet on the frame and glaſſes, both to defend the bed from rain or ſnow, and to draw the heat ſooner to a proper temperature, then earth the bed within the frame with light rich mold, five or ſix inches thick, alſo fill two, three or more, middle ſize garden pots, with the ſame ſort of earth, and plunged about half way in that of the bed, and in which to ſow the ſeed, obſerving to tilt the glaſſes a little behind, to give vent to the ſtrong ſteam riſing from the heat of the dung below.

Then having for this purpoſe ſome early or beſt cucumber ſeed, ſow it either wholly in the pots half an inch deep, or ſow ſome alſo in the earth of the bed, to have the greater chance; but by ſowing in pots, if too much heat ſhould afterwards happen, thoſe can be readily drawn up leſs or more, or wholly, out of the earth, more diſtant from the effects of burning, the ſeed will quickly grow and come up in two, three, or four days, when obſerve to raiſe the lights or glaſſes behind half

an

an inch or an inch high, to admit air to the plants, and for the ſtrong ſteam of the bed to paſs away; and cover the glaſſes every night with a garden mat, and uncovered in the morning.

When the plants, in three or four days after they come up, have their firſt leaves or ſeed lobes half an inch broad, or little more, prick them in ſmall pots, which previouſly fill with light rich mold, and place them in the hot-bed all night till next day, when the earth in the pots will be warm, then carefully take up the young plants with as much roots and earth about them as will adhere thereto, and either prick them in the pots, if ſhort ſhanked, by making holes with the fore-finger, inſerting them down to the ſeed leaves, four in each pot; or, if long ſhanked, form the earth of the pots a little hollow in the middle, an inch or two deep, place the plants on the ſide of the hollowed earth at equal diſtances, with the roots towards the middle, and earth them over the roots and ſhanks up to the leaves; give a very little water only, juſt in the middle of the pots, to ſettle the earth about the roots; and being thus in pots, they, in advanced growth, can readily be tranſplanted with the whole ball of earth about the roots into the large hot-beds, where they are to remain; obſerving, in the mean time, as ſoon as potted, to plunge the pots of plants into the earth of the preſent ſmaller hot-bed to their rims, and ſhut down the glaſſes; but be careful when a ſtrong ſteam and heat ariſes to give it vent, and admit air, by tilting the upper ends of the lights one or two fingers breadth every day, or alſo occaſionally of nights, when a powerful heat and ſteam, defending the open part occaſionally with a garden mat ſuſpended from the top, eſpecially at an early ſeaſon, or when a very ſharp cutting air or cold piercing wind prevail; and always cover the tops of the glaſſes every night till morning with mats, one or two thick, according to the degree of heat in the bed.

In the early and advanced ſtate of the bed, be careful to examine daily the degree of heat, to obſerve if it either proves too violent or declines conſiderably; and if in the early ſtate, any danger of over heat or burning

ing appears in the earth below to affect the roots of the plants, diſcoverable either by its feeling too vehemently hot to the fingers when thruſt down therein, or if a great heat, and the earth alſo aſſumes a whitiſh mouldy colour at bottom, being the effects of burning, then immediately draw up the pots of plants further from the dung, and admit a larger portion of air in proportion; and, when the great heat is reduced or abated, plunge the pots again as before; but if the bed diſcovers a moderate lively heat, all is well; or if the heat declines rather to a weakly degree, then either lay dry long litter round the ſides of the bed; or if much decreaſed in heat, apply a lining of hot dung to the back part, and in a week after to the front, as hereafter explained.

The hot-bed being in a moderate growing heat, and the plants in a good ſtate of growth, ſtill admit a due portion of freſh air daily, &c. and give them occaſional light waterings in ſun-ſhining days in the forenoon, with ſoft water, which, if very cold weather at an early ſeaſon, then previouſly have the chill taken off, either by being placed within the frames a few hours in ſmall garden pots or bottles, &c. or ſome warmed and poured into more to make it of a proper temperature, not warm, only juſt to take off the ſharp cold; and give it moderately once or twice a week, as you ſhall ſee neceſſary by the earth appearing more or leſs dry, and according to the temperature of the weather; continuing to cover the glaſſes every evening, and gradually augment the covering from one to two or three mats thick, according as the heat and ſteam ariſing in the bed become more moderate.

The next material care is to ſupport a proper growing heat in the bed; obſerving in the firſt place, at an early ſeaſon in cold cutting weather, and in the early ſtate of the bed, it will prove beneficial to lay dry long litter round the ſides in a week or ten days after the bed is made, or when the heat is become moderate, as this will both confine the heat and keep the bed from being chilled or ſuddenly decayed by driving rains, ſnow, or piercing winds, &c. however, at any rate, be careful in the more advanced ſtate of the bed, in a

fortnight

fortnight or a little more or leſs time after ſowing or planting, when the heat begins to decreaſe conſiderably, to apply a lining of hot dung to the ſides; firſt, if any litter was laid round, as above, remove it, then, with freſh hot dung, line the back part of the bed half a yard wide at bottom, and continued upwards not leſs than twelve or fifteen inches wide at top, raiſed as high as the dung of the bed, covering the top with two inches of earth to keep down the ſtrong ſteam and heat; in a week or ten days after, line the front of the bed in the ſame manner; and which linings of hot dung will ſoon work ſo effectually as to communicate an agreeable reviving heat to the declining bed, and ſupport it in a proper temperature to continue and forward the plants in a free growth to a proper ſtate for final tranſplanting into the larger hot-beds, where they are to fruit; for by ſupporting a conſtant moderate bottom and internal heat, of a lively temperature, giving proportionable admiſſions of free air and neceſſary ſupplies of water, and if the weather proves tolerably ſunny, which is an eſſential requiſite at an early ſeaſon, theſe plants will advance ſtrong and healthful from the beginning.

The bed thus preſerved in a regular eligible degree of heat, and the plants advancing freely, be very careful in order to promote proper ſtrength in their growth, to continue giving neceſſary admiſſions of freſh air and vent to the ſtrong internal ſteam to evaporate every moderate day, or even occaſionally in froſty weather, if there is a great ſteam and good lively heat in the bed; for the admitting of air is very eſſential both in ſtrengthening the plants, and to keep the ſtrong ſteam ariſing in the bed in motion, that it may paſs away without condenſing conſiderably into drops of water on the glaſſes to fall on the leaves of the plants, and alſo to prevent burning in the bed and earth: being therefore careful always to admit a requiſite ſupply of air in proper moderation, by raiſing up the lights behind on props from about half an inch to an inch, or more, occaſionally, according to the ſtate of the bed and temperature of the external air, admitting it more or leſs in proportion as the interior heat is ſtrong or moderate, and as the wea-

ther may prove mild and ſunny, or cold, cloudy, froſty, &c. but always the moſt freely when a full ſun, and even when froſty, as before obſerved in ſun-ſhining days, and there is a good internal heat and copious ſteam iſſuing to moderate the entering air; for at all ſeaſons ſunny weather, with a proportionable ſhare of air admitted, contributes exceedingly to the proſperity of theſe tender plants; and which, at an early ſeaſon, when ſometimes but very little ſun occurs, often prove unſucceſsful: generally however, obſerve, in giving air, to proceed with caution in the early work, from about eight, nine, ten, or eleven in the morning, according to the temperature of the weather, and that of the bed, as above obſerved, opening the lights but a little at firſt, increaſing it moderately by degrees in the above mentioned proportion, till the middle of the day, twelve, one, or two o'clock; then decreaſe it gradually till three, four, five, &c. as the ſeaſon is leſs or more advanced, and then ſhut cloſe: or if at any time of the day the weather ſuddenly changes colder, or from ſunny to cloudy, either put down the lights cloſer, or quite down, if but a moderate heat in the bed, or on the ſame occaſion, if the heat and ſteam are rather conſiderable, tilt up one corner of the lights or glaſſes half an inch or an inch, to admit a ſmall current of air to moderate the ſtrong heat, and to give vent for the internal ſteam to evaporate more effectually at the opening; defending the open part occaſionally, when very unfavourable weather, with a mat hung looſely down juſt to break off ſharp cold or winds; alſo on the above conſideration of a great heat and ſteam, give air occaſionally of nights by raiſing the glaſſes a little at the upper ends when you cover up in the evening, hanging the end of a mat before the opening as above adviſed; but when the bed is of a mild kindly heat, and the ſteam moderate, admit air only principally in the day time.

Continue every evening to cover the glaſſes with mats one, two, or three thick, according to the degree of heat in the bed; obſerving in this, where a good heat, never to permit the ends of the mats to hang down low all over the ſides of the bed, which would exclude the

external air too much, be apt to confine and draw the heat and ſteam too conſiderably to the prejudice of the plants, and by keeping them ſo cloſe, would draw them weak and of a ſickly yellow colour. Generally begin covering up about ſun-ſetting or ſoon after, or a little ſooner or later as the weather is leſs or more favourable, always continuing them longeſt uncovered in mild ſunny days; for it is eſſential for the plants to enjoy as much light and ſun as poſſible; and uncovered every morning ſoon after ſun-riſing, or, in mild weather, before, according to the ſeaſon, eight or nine in winter, or ſix, ſeven, or eight in the more advanced ſeaſon of ſpring, &c. or in ſunny mornings uncover as ſoon as the ſun ſhines fully on the frames, to let the plants have all poſſible benefit thereof, at an early ſeaſon particularly.

Thus far being the principal management of the hot-bed, and plants thereof, in this their early ſtage of growth, in which, as at an early ſeaſon, they being liable to ſuffer from various cauſes, and requiring peculiar attention in their tender nature, I have been the more careful in this ſtate to point out the moſt eſſential particulars to be obſerved in their culture.

But generally obſerve, it is adviſeable in the ſame bed to ſow a moderate portion of ſeed two or three different times, at about a week or ten days interval, and managed according to the foregoing general directions, in order to have a better chance of being well furniſhed with proper ſupplies of young plants, in caſe of failure by the different accidents to which thoſe tender exotics are liable, eſpecially at an early ſeaſon, either by overheat or rank ſteam in the hot-bed, or for want of due heat therein, and other unforeſeen cauſes; and therefore by theſe different ſowings there will always be a good chance from one or other to obtain plenty of proper plants both for firſt and ſucceſſional fruiting hot-beds.

Though ſometimes in raiſing early cucumbers, at a forward ſeaſon, two nurſery or raiſing beds are employed, or occaſionally neceſſary in order to forward them as much as poſſible to a proper growth for ridging out finally; firſt raiſing the plants from ſeed in a ſmaller hot-

hot-bed, and pot them as before directed, and then, either as ſoon as potted, if not room enough in the ſeed-bed, or in a week or fortnight after, when the heat declines, remove them in their pots into a ſecond or larger new hot-bed, there nurſed and forwarded in growth a fortnight or three weeks longer, till of a proper ſize and ſtrength for tranſplanting into large hot-beds, finally to remain for fruiting.

Next obſerve, in the advanced growth of the plants, that as they at firſt proceed with only the two ſeed-leaves or cotyledons, they afterwards in their centre produce their proper leaves, commonly called rough leaves, according to the gardeners phraſe, firſt one and then a ſecond: and when theſe rough leaves are one or two inches broad, they at the baſe of the ſecond form the firſt joint, and at which, in the boſom of the ſaid ſecond rough leaf, puſh forth the firſt runner bud, or end of the firſt advancing runner; and this bud, when the ſize of a large pin's head, or ſmall pea, ſhould be pinched or cut off cloſe to the joint whence it proceeds, which is called ſtopping the plants at the firſt joint; a moſt neceſſary operation, both to promote a ſtronger robuſt bottom growth, and to encourage their producing two or three lateral runners of a fruitful nature for bearing, otherwiſe would advance with only the firſt ſingle runner a conſiderable length without ſhewing fruit, for this is produced principally from the laterals obtained as above, which will probably ſhew fruit at the firſt, ſecond, or third joint; but if they fail in this, it is proper alſo to ſtop theſe ſecond runners at the third joint from the bottom, to procure a further ſupply of collaterals, which generally ſeldom fail of being fruitful.

However obſerve, that when the plants have advanced in the two firſt rough leaves two or three inches broad, and having been ſtopped at the firſt joint, as above adviſed, and they, in conſequence of that operation, have in a week or fortnight after acquired a robuſt ſtocky growth, and preparing to puſh the ſecond runner buds, they are then of the moſt eligible ſtate for ridging out, or tranſplanting finally from the pots into the larger hot-beds, in dimenſions for one, two, or more

three-light frames, to remain for fruiting, according to the following directions.

But obſerve, this larger hot-bed for the final reception of the plants ſhould be made a week, ten, twelve days, or a fortnight before, according to its extended ſubſtance, to be preparing to a proper temperature while the plants are advancing to the above proper ſtate of growth.

Having the dung ready prepared for this purpoſe, make a ſubſtantial hot-bed, the dimenſions in width and length of the intended larger frame, ranging longways eaſt and weſt to front the ſouth ſun, or if for two, three, or more ſuch frames, extend the length accordingly, and carry it up the regular width of a frame to about three feet and a half high, directly put on the frames and lights to defend the bed from the weather, and to draw up the heat more expeditious and effectual to a proper temperature, raiſing the upper ends of the lights an inch or two, to give vent to the rank ſteam, and firſt violent heat to evaporate; for as the bed will heat violently at firſt, of a burning quality, let it remain a week, or ten, or twelve days, or more, according to its ſubſtance in length, to prepare to a moderate lively heat before you put in the earth and plants.

Then when the bed is reduced to a mild degree of heat, prepare for planting, firſt if the bed has ſettled unequally, remove the frame and form the top regular, replacing the frame again, and earth the bed within the frame with light rich dry earth, laying it in little round hills, one juſt under the middle of each light, eight, ten, or twelve inches thick, to receive the plants, earthing the other parts between the hills only two or three inches at preſent, juſt to keep down the rancid dungy ſteam from the plants, and till the heat is ſtill more reduced, leſt, if laid thicker at firſt, it, by confining the heat and ſteam too much, may occaſion burning; for every part of the dung of the bed within the frame ſhould be covered, as above, with earth, that none of the rank hot ſteam may riſe immediately from the naked dung to approach the plants, which would prove their deſtruction, and is afterwards to be earthed by degrees of equal thickneſs with the hills: obſerving, in the mean time, when the

hills

hills of earth are warmed by the bed, the ſame, or next day, and if the heat remains moderate, to bring the plants in their pots, &c. from the firſt hot-bed, and turn them out, one pot at a time, with the whole ball of earth about the roots entire, and making an opening in the middle of the hills of earth, plant one ball or pot of four plants in each, cloſing the earth about the ball, roots, and bottom of the ſtems of the plants, give a very moderate watering to the earth about the roots and extreme fibres; ſhut cloſe the glaſſes to draw the heat, but afterwards raiſed or tilted up a little every day about half an inch to an inch or more behind, to admit air and give vent to the ſtrong ſteam now ariſing from the heat of the bed; and cover the glaſſes every evening with garden mats, one, two, or three thick, according to the degree of heat in the bed, ſeaſon of the year, and temperature or ſeverity of the weather, and uncovered in the morning.

After the plants are thus ridged out, we muſt carefully attend them daily, both to admit air leſs or more, by raiſing the upper ends of the lights half an inch to one or two inches, according to the heat of the bed, and that of the ſeaſon, and temperature of the external air; and likewiſe if, when the plants are firſt ridged out, they in ſunny days flag or ſhrink their leaves much by the power of the ſun, give a ſlight ſhade of a thin garden mat, or a little looſe litter for one, two, or three hours, or more, in the heat of the day, till they take good root and ſtand the ſun fully; obſerving alſo, in the early ſtate of the bed, to examine its degree of heat daily, to ſee whether it continues moderate, or caſually encreaſes too violent, which latter ſometimes happens in ſtrong beds, ſo as to burn the earth at the bottom of the hills, diſcoverable by the whitiſh mouldy appearance and rancid vapour; and in which caſe remove it directly and apply freſh dry mold, at the ſame time narrow the bottom of each hill conſiderably, to give more vent to the violent heat, for a few days, and, when moderate, apply the earth round them again by degrees, as alſo in the ſpaces between gradually; and afterwards, in the advanced ſtate and declining heat of the bed, it muſt

be revived and ſupported in a regular degree, by applications of occaſional linings of hot dung to the back part and front of the bed, as directed under the article of lining the bed; continuing the glaſſes conſtantly on the bed, night and day, till the middle or latter end of June; and the glaſſes covered every night with mats, till near or quite that ſeaſon.

When the firſt great heat of the bed is become quite moderate, in a week or fortnight, or little more, after putting in the plants, begin to apply more earth, to be added around, and in the ſpaces between the hills, by degrees, firſt laying it towards the ſides of the frame till warm, then add it gradually round the hills to the extreme fibres of the plants, and alſo in the ſpaces between, till, by two or three applications, the whole is filled up equal with the tops of the hills in every part of the bed within the frame, from about ſeven or eight to ten inches depth, in a level order; and on which, according as the plants puſh their runners, train them along regularly.

To the early beds, ſoon after they are planted as above, it will be beneficial to lay ſome ſtraw, or dry long litter, round the ſides, both to confine the heat, and to keep off driving rains, ſnow, cold piercing winds, &c. which would be apt to chill the bed, and cauſe a ſudden decay of the heat, permitting this protection to remain till the heat naturally declines, and the bed want lining; then removed, and apply a ſubſtantial lining of hot dung to the back and front ſides alternately, at eight or ten days interval.

In the advancing ſtate of the bed, and growth of the plants, in their above final tranſplanting, or ridging out hot-beds, be careful to give proper admiſſion of freſh air, every day, in all moderate weather, even in froſts, if calm and ſunny, by raiſing or tilting the upper ends of the lights behind one, two, or three finger-breadths, according to the degree of heat in the beds, and temperature of the external air; and in that proportion encreaſing it leſs or more as the middle or warmeſt part of the day advances; and decreaſe it by degrees towards afternoon, and ſhut cloſe before the evening

evening, or when the weather changes colder, unleſs, in the early ſtate of the bed, there is a ſtrong heat and ſteam, and it may ſeem neceſſary to continue a ſmall admiſſion of air, and to give vent to the ſteam of nights; in which caſe one corner of the lights may be raiſed half an inch or an inch at the time of covering the glaſſes in the evening, and ſuſpend a mat before the tilted part, to break off the wind, or ſharp cutting air; but after the great heat and ſteam ſubſides, give air principally only in the day time; and always admit air more freely in ſun-ſhining, calm, mild days, than in cloudy, or very cold weather; as alſo to admit a larger portion in the advanced warmer ſeaſons of ſpring and ſummer than in the more early periods; continuing this care till June or July; as alſo to cover the glaſſes every night till that time, when the weather will be warm enough to expoſe the plants by degrees to the full air, occaſionally, for the remainder of the ſummer.

Obſerve in the mean time, according as the plants puſh their runners, to train them out regularly along the ſurface of the bed, in different directions, pegging them down gently with ſmall hooked ſticks; and occaſionally, if, in their conſiderably advanced ſtate, they ſhoot ſuperfluouſly in a crowding confuſed growth, prune away the weak, moſt irregular, and apparently unfruitful vine, in ſome regular order; likewiſe the bunches of decayed male flowers, eaſily diſtinguiſhable from the female or fruit bloſſom, by the latter always diſcovering the young fruit in embrio under the baſe of the flower.

Occaſional waterings will be neceſſary once or twice a week only, in an early ſeaſon in winter and ſpring, but oftener in the advanced warm ſeaſons of ſpring and ſummer; obſerving generally, in early ſeaſons, to water principally in the forenoon of a mild ſun-ſhining day, always very moderate, and ſhut down the glaſſes, and, if a warm ſun, ſpread a mat over for about half an hour, which will promote a peculiar kindly moiſt-growing heat, very beneficial to the plants and young fruit; then remove the ſhade, and admit air; but in the warm ſeaſons give water more freely, and in a

morning, from about eight to nine or ten o'clock, or in ſummer earlier; or about four, five, or ſix in the evening: obſerving, in all theſe waterings, generally to prefer ſoft water, if poſſible from a river, pond, ciſtern, &c.

According as the plants advance in the ſecond runners, produced after the operation of ſtopping before adviſed, they, if a good ſort, will probably begin to ſhew fruit at the firſt, ſecond, or third joint, or ſometimes at almoſt every joint, as they extend in length, diſcoverable firſt at the baſe of the female flower-bud, when not exceeding the ſize of a ſmall barley-corn; remarking in this, that as the cucumbers produce male and female flowers ſeparately, the latter only furniſh the fruit, appearing, as before ſaid, attached to the baſe of, or, in other words, with the flower-bud on its ſummit; and, ſhortly after, the flower expands, receives the impregnation of the male-bloſſom, effected either by art or nature, then the fruit ſwells faſt in growth; at which period of the plants ſhewing and ſetting their fruit, it is materially eſſential, in early work, to have a good lively bottom heat in the beds, ſupported by occaſional linings of hot dung to the ſides, neceſſary to make the fruit ſet freely in proper abundance.

Lining will be neceſſary at different times to ſupport a proper heat, for two or three months to come; firſt obſerving, in the advanced ſtate of the early hot-beds, after ridging out the plants, in winter or ſpring till May, it is proper in ten or twelve days, or a fortnight, or three weeks, according to the ſubſtance of the bed in length, to examine the ſtate of its temperature, and when the heat is found to decreaſe conſiderably, be careful to revive it in due time by applying a ſubſtantial lining of hot dung; firſt to the back part fifteen or eighteen inches wide, and three or four to ſix inches higher than the dung of the bed, to allow for ſettling: and, in a week or ten days after, line the other ſide, laying ſome earth on the top of each lining, two or three inches thick, to keep down the ſteam and heat; and thus theſe linings will communicate a freſh heat, and enliven that of the bed, to a proper degree, to

ſupport

ſupport a free growth in the plants and fruit; and which linings will require to be renewed occaſionally, according as the heat of the bed again decreaſes, removing the old, or the beſt of this may be forked up with freſh dung in applying the new lining; continuing thus to ſupport a proper heat till the middle or end of May, or beginning of June, when ſettled warm weather commences; then no more linings will be required; and the heat being thus ſupported in a conſtant regular temperature, the plants from the beginning will advance in a regular free growth, the fruit ſet kindly, and grow freely; being however careful to examine, that ſtrong linings, when in full heat, do not impart any burning quality to the bed, to burn the earth, and roots of the plants; having two or three trying ſticks thruſt down within the frame, towards the ſides of the bed, to draw up daily, to try the heat below; or occaſionally thruſt your fingers down in the earth, next the frame, and if the heat caſually diſcover a too violent ſtate, inſtantly remove part of the lining one third or half way down for a few days, then apply it again by degrees.

A ſlight ſhade to the plants, in warm ſun-ſhining days, will ſometimes be neceſſary, when the power of the ſun, through the glaſſes, occaſions the leaves to flag or ſhrink conſiderably; at which times a thin mat, or ſome looſe litter, may be ſpread very thinly over the glaſſes, from about eleven or twelve, to two or three o'clock, then removed; and this will be ſometimes eligible both in the early and advanced ſeaſon, though more particularly the latter in hot weather, when the ſun is powerful; but when a moderate ſun, the ſhading will be leſs neceſſary, or but ſlight, and of ſhorter duration in proportion: however, in all hot ſunny weather, a moderate ſhading in the heat of the day during the ſeaſon the glaſſes are continued over the plants till June or July, will be very neceſſary in preventing the leaves, runners, and roots, from being ſcorched and parched by the ſun's rays through the glaſſes, and in preſerving the moiſture; and, in the whole, prove very be-

neficial to the growth of the plants, and the production of fruit.

When the plants diſcover a fruiting ſtate, and the young fruit appears in full bloſſom, it is eſſentially neceſſary in the early plants, and others, in the ſpring and beginning of ſummer, till June or July, according as the fruit bloſſoms expand, to ſet or impregnate each young fruit, at that period, with the farina of the male flower, which is called ſetting the fruit; a curious and effectual operation, performed by conveying the male to the female flower, and injecting the fecundating powder of the former into the latter, and is indiſperſibly eligible to early plants confined from the full air in frames, as in which, without ſuch artificial aid, not one fruit in twenty would ſtand; though in ſummer, when the plants are more conſiderably or fully expoſed to the free air, the impregnation is abundantly effected by nature.

However, in the early and general frame plants, ſhewing fruit in February, March, and April, till June, as aforeſaid, never omit performing this buſineſs, more or leſs, by hand, thereby making ſure of almoſt every fruit that bloſſoms; previouſly remarking, that as theſe plants always produce male or barren flowers, and female or fruitful ones, ſeparate, each is very diſtinguiſhable; the female, or fruit-bloſſoms, having the embrio fruit attached under their baſe, as formerly obſerved, are diſcoverable, from their firſt viſible formation, when only in bud, till the flowers expand; the male flowers, being deſtitute of fruit, contain, in the middle, the anthera or male organ, furniſhed with the farina or fecundating powder, deſigned by nature for the impregnation and fertilizing the female; and when the flowers of both ſexes are fully expanded, and generally the ſame day they open, is the ſucceſsful time of effecting it, both by nature and art: thus obſerving theſe particulars, and proceeding to the operation, generally look over the plants every day in the forenoon, according as the male flower and fruit-bloſſom appear in full expanſion; and principally the ſame day they expand, or not later than the ſecond, while the generative parts remain

remain in full vigour (mark this), when detach from the plant ſome freſh fully expanded male bloſſoms, taking one at a time, pull away the ſurrounding petal or flower leaf clean to the central part, which being the anthera containing the fertilizing duſt, apply it to the ſtigma of the female organ in the centre of the female or fruit bloſſom, gently touching and twirling it about to diſcharge ſome of the farina thereon, and the buſineſs is effected, throwing away the male part, not leaving it in the female, as ſometimes unneceſſarily done, and have a freſh one for each impregnation: or, if the males are ſcarce in early ſeaſons, one will ſometimes ſerve for two or three females, as a ſmall portion of the farina injected effects the purpoſe; and after which operation, you will, in two or three days, obſerve the young fruit begin to ſwell and advance faſt in growth, and attain a proper ſize to cut in a fortnight; but which, without this aid, in the early plants, would moſtly all prove abortive, turn yellow, and decay in their infant ſtate.

When, however, the ſettled warm weather in May, June, and July, arrives, to allow of giving a large admiſſion of free air to the plants, or expoſing them fully thereto in the heat of ſummer, you may leave the impregnation of the fruit to nature; which, by the aſſiſtance of gentle breezes, and the bees roving from flower to flower, conveying the farina of the males to the female bloſſoms, will ſet plentiful ſupplies in regular ſucceſſion.

From the time the fruit ſhews, till arrived to proper growth, will, in free growing plants, be about twenty, or one or two and twenty days; and from the time the fruit ſets, will be from ten or twelve days to a fortnight.

If the plants in their advanced ſtate encreaſe ſo conſiderably in growth, as to fill and greatly crowd the frame with ſuperfluous and uſeleſs vine, continue to prune away part of the ſuperabundant, weak, and moſt unfruitful runners; and if, in ſhallow frames, the plants in ſtrong growth advance conſiderably upward againſt the glaſſes, it is proper to raiſe the frame three

or four inches or more at the bottom, to give more room above, and close up the vacancy below with dung or dung litter; or, in an advanced period of the season, about the beginning or middle of June, the vacancy under the frame may be left open for the extreme runners to run out upon the top of the linings.

In the advanced warm season, the glasses still continued on the frames till the middle or end of June, admit a large portion of free air, by raising them behind two or three inches, or more, every day, from morning till evening; and, at which time, may discontinue covering the glasses of nights; giving also now more plentiful waterings, two or three times a-week; and, in hot sun-shine weather, while the glasses are continued, still give a slight shade to the plants, of mats or litter spread over the glasses, thinly, in the heat of the day: likewise, when the plants have extended considerably, to every side of the frame, this, in June, may not only be raised at bottom, for the plants to run out upon the top of the linings as before observed, but the glasses may occasionally be taken quite off, after the middle or latter end of that month, in warm days and gentle showers; and then, or in July, the glasses may, by degrees, be wholly discontinued day and night; or may continue them occasionally, if great rains happen, to preserve a production of fruit in greater perfection; but generally, in this season, permit the plants to enjoy the benefit of moderate rains, and the full air, from the commencement of warm weather in June, or beginning of July.

Thus the crops of frame cucumbers will produce a succession of young fruit in the early and succeeding plants from spring till autumn, the early crops raised in January or February will probably bear in March, April, &c. till June or July, and later raised plants will bear accordingly from April, May, or June, till August, or, if some of the latest crops are defended in autumn of nights, cold and wet weather, with the glasses, will continue fruiting till September or October.

That when the culture of cucumbers is commenced early in winter or ſpring, &c. ſucceſſional crops may be forwarded by ſowing two or three different times in the tranſplanting beds, wherein the firſt crops are ridged out; and of each ſowing prick ſome in pots, and plunged in the bed, as directed in the firſt ſeed hot-bed, to be advancing in different ſtages of growth to a proper ſize for other tranſplanting hot-beds, to be ready both in caſe of failure in any former plants, and in ſucceſſion, if required to continue a production of young cucumbers in regular ſupply in ſpring or ſummer, or till the hand-glaſs crops and natural ground plants come into bearing, in June, July, and Auguſt; and for which purpoſes, may always have plenty of young plants, by ſowing a ſmall portion of ſeed in the different hot-beds at ſhort intervals, and potting ſome plants of each ſowing in their young growth, ready for tranſplanting into fruiting hot beds in any of the ſpring months, from February, March, or April, till May; as alſo by ſowing in the middle or end of March, and in April, in the frame hot-beds, the plants will be of proper growth to ridge out in April and May in hot-beds under hand-glaſſes, as directed for that article of culture under its proper head.

If required to continue any late frame plants ridged out in April or May, in bearing as late in autumn as poſſible, defend them always from great rains, and in Auguſt and September put on the glaſſes every night, and all cold and bad weather, they will thus ſometimes bear good fruit till September or October.

Or to have late cucumbers in frame hot-beds to continue bearing clean fruit till September or October, &c. ſome may be ſowed and pricked in pots in July, either in a ſlender hot-bed or in the open ground, and tranſplanted into a moderate hot-bed the beginning, middle, or any time of Auguſt, or beginning of September, defended with a frame and glaſſes, obſerving the ſame culture nearly as directed for the early frame crops; and when the heat of the bed declines in September, &c. and cold nights prevail, ſupport the heat by moderate linings of hot dung; and, the glaſſes covered

every

every night with mats, the plants will continue producing from September till November or December.

In the different crops, the gathering of cucumber fruit ſhould always be performed in their young green ſtate, when from three or four to five or ſix inches long, generally cutting them with part of the foot ſtalks attached to each.

Raiſing them under Hand-glaſſes for general Summer Crops.

For raiſing cucumbers under hand-glaſſes, theſe may either be the common leaded ſquare glaſſes, or bells, or ſome of both, as may be convenient, and is effected by ſowing in hot-beds, under frames, &c. in March or April; or, in want of theſe, under the ſaid hand-glaſſes in April or May, all for ridging out in the two laſt named months, and beginning of June, in hot beds under the ſame kind of glaſſes, to produce a general ſummer crop in June, July, and Auguſt, both to ſucceed the early frame plants, or for a principal firſt crop in gardens not accommodated with frames, or plenty of hot dung, to begin at an earlier ſeaſon.

To raiſe hand-glaſs crops, a firſt ſupply may be ſowed about the middle or latter end of March, or beginning of April, either in any former made hot-beds under frames, as are then in cultivation, or in default of this, in hot-beds made for that purpoſe, for a one, two, or three light frame, according to the quantity required, or neceſſary to raiſe; and to be ridged out the middle or latter end of April, or beginning of May; or you may ſow principally in the beginning or middle of April, in a hot-bed, as above, for a main crop, to ridge out the latter end of that month, and any time in May aforeſaid, or ſowed the middle or end of April or beginning of May, either in a frame or hand-glaſs hot-bed, for tranſplanting about the middle or end of the laſt mentioned month, and beginning of June for the lateſt ridging out plants; and all which plants of theſe ſowings, when a few days old in the ſeed leaves, of half an inch to an inch broad, ſhould be pricked ſome in ſmall pots, three or four plants in each, watered and plunged in the earth of the ſame, or another hot-bed, if

not

not room in that where raiſed, and ſome pricked in the earth of the bed, three or four inches diſtance; continuing them in growth in theſe hot-beds till advanced in the rough leaves two or three inches broad, and have been ſtopped at the firſt joint, as adviſed in the early frame plants, in order to promote a ſufficient degree of ſtrength, and to prepare them for producing a proper ſupply of fruitful runners, then ſhould be tranſplanted finally into the hot-bed ridges under the hand-glaſſes.

But in want of frame hot-beds for raiſing the above plants for ridging out, they, about the beginning, middle, or latter end of April, may be ſowed in a hand-glaſs hot-bed, defended with one, two, or ſeveral glaſſes, and raiſed as above, to a proper growth for tranſplanting; or occaſionally ſowed at once under the hand-glaſſes in hot-beds, or holes of hot dung for each glaſs, to remain, as hereafter explained.

However, where a ſupply of plants has been raiſed, as above directed, for ridging out, proceed to make the hot-bed ridges for their final reception, about the middle or latter end of April, and any time in May, to the beginning of June at lateſt, making them either entirely on the ſurface or level ground, four feet and a half wide, by two and a half, or three feet high, or made in a trench, a yard wide and two feet deep; but if made in April or beginning of May, as the beds made at that time may probably in a cold ſeaſon want lining to the ſides with hot dung to renew the heat, it will be eligible to make them on the level ſurface, to admit either of lining quite to the bottom, or if two or more beds are made parallel, three or four feet aſunder, to fill up the ſpace between with warm dung, and earth at top, in two, three, or four weeks after, both to augment the heat, and to give a large ſcope for the plants to run; though, if not made till the beginning, or towards the middle and latter end of May and beginning of June, no linings will be required, and may be more eligibly made in a trench or trenches in any of the quarters of rich kitchen ground, and more eſpecially for large quantities, as the earth digged out to form the trench a yard wide, and half a yard or two feet deep,

ſerves

ſerves both to earth the bed, and enlarge each ſide, to form the ſurface of a more conſiderable width, for the runners of the plants to extend to their full growth each way.

To make theſe hot-bed ridges for hand-glaſſes wholly on the level ground, in April or beginning of May, let them be four feet, or four and a half wide, by two and a half, or a yard high, in dung, and earthed at top eight inches with rich light mold; place the hand-glaſſes thereon along the middle, a yard or four feet aſunder, or at firſt only earth the places for the glaſſes the above depth in little hills, the other parts of the bed only two or three inches for the preſent, to be afterwards earthed by degrees the full depth; ſet on the glaſſes, and kept cloſe till the earth is warmed by the heat of the dung; then plant the cucumbers, removed with balls of earth to their roots, either from pots, or the earth of the bed where raiſed, planting three or four under each glaſs; give water, and ſhade them from the ſun with mats till they take freſh root, and begin to grow; when remove the ſhades, and give them air by tilting one ſide of the glaſſes an inch or two daily; and give occaſional watering; obſerving, that if the bed was at firſt earthed in hills, as above intimated, let the other parts between be augmented with more earth by degrees, equal with the ſaid hills, all parts of the ſame depth; and if in two or three weeks, &c. the heat of the bed declines, renew it, by lining the ſides with hot dung, and earthed at top of the lining; continuing to cover the bed, and over the glaſſes, every night with mats till the middle of June; and at which time raiſe the glaſſes upon three props, three or four inches high, for the vine or runners to extend from under in a free growth over the bed, training them along in regular order: and give water in hot dry weather, two or three times a week at leaſt; and they will begin to bear in May, and be in full bearing in June and July, &c. till Auguſt and September.

And to make the beds in trenches, in May and beginning of June, theſe may be made in any of the open compartments of the kitchen ground of a rich light

light ſoil, where mark out the trenches, a yard wide, and ſix to eight or ten feet diſtance, and digged out half a yard deep, laying the earth equally to both ſides, in a ridge along cloſe to the edge, ready for earthing the bed; then wheel in the dung, fork it up regularly into the trenches the full width, and worked up cloſe and firm to about ſix or eight inches above the general level of the ground, to allow for ſettling, and directly earth the ridge or bed at top, ſix or eight inches deep with the earth of the trench, adding the remainder of the earth to both ſides, to enlarge the width in a regular manner; which done, ſet on the hand-glaſſes, three or four feet diſtance, and when the earth under them is warm, put in the plants, and manage as before directed in the above-ground beds: they will produce in June, but more plentifully in July and Auguſt.

Or in hot-bed ridges as above, for hand-glaſſes, made either on level ground or in trenches, the end of April, or any time in May or beginning of June, that in default of conveniences of raiſing plants for planting therein, ſeeds may be ſowed under the glaſſes, and the plants to remain; they will alſo bear fruit in June and July.

Likewiſe, where not plenty of hot dung for making regular hot-beds for the hand-glaſſes as above, plants or ſeed may be planted or ſowed upon holes of hot dung, digging holes two or three feet wide and a ſpade deep, and five feet aſunder, and filling each hole with a large wheel-barrow or two of hot dung, trod down cloſe, earthed ſix or eight inches, and covered each with a hand-glaſs, and when the earth is warm, put in the plants or ſeed; they will produce tolerable crops in June, July, &c.

Or in want of hand-glaſſes for the above crops, the hot-beds made any time in May till June may be covered with oiled paper frames; which frames are conſtructed like the roof of a houſe, or archways, ten feet long, four wide, and two or three feet high, with thin ſlips of wood, or broad hoops for arched frames; firſt forming the bottom part the above width and length, and to which fix croſs ribs or rafters a foot aſunder;

and

and then draw twine or packthread croſsways round each rafter, the ſame diſtance, and up and down between, in an interſecting order, to ſtrengthen the paper more effectually when paſted on; and having ſome large white demy paper, paſte it on the rafters, &c. in a regular manner; and, when quite dry, bruſh it over the outſide lightly with linſeed oil, to render it water-tight and pellucid; then, when this is alſo thoroughly dry, the frame may be uſed to place upon the above beds inſtead of hand-glaſſes; and as theſe will both defend the bed from cold and exceſſive rains, and admit light and heat of the ſun, without any ſcorching effect, as ſometimes occur through glaſſes, the plants will bear plentiful crops of fine cucumbers in June, July, till Auguſt or September; obſerving to give air, by raiſing the frame at bottom; and give proper waterings two or three times a week.

By the above different methods of raiſing cucumbers under hand-glaſſes and oiled paper, the plants will produce plentiful ſummer crops in May, June, July, or even till September, when, about the middle of that month, the ſeaſon of cucumbers may be ſaid to terminate, by reaſon of the ſtrong dews, rains, and cold nights, which ſtop the further production of fruit, and it becomes ſtunted, ſpotted, and ill taſted; and the plants wholly periſh by the end of the laſt-mentioned month.

Though if ſome plants are defended in Auguſt, or early in September, with a frame and glaſſes, and the glaſſes covered in cold nights, the plants will continue producing clean handſome fruit to the lateſt period, the end of September, or beginning of October, if a fine autumn.

Natural ground Crops, for pickling and other Uſes, by ſowing in the full Ground.

CUCUMBERS being tender plants, as before intimated, will not grow in the natural ground in this country before ſummer, the latter end of May, or beginning of June, when the weather is ſettled in warm and dry, and in which ſeaſon the ſeed may be ſowed in the open

open ground, to produce a late crop in autumn, about Auguſt to the middle or latter end of September, both to gather young, of one, two, or three inches growth for pickling, and to attain a larger ſize for eating raw occaſionally, and other late purpoſes, in ſucceſſion to the hand-glaſs crops, where any, or as a general crop in gardens not furniſhed with frames or hand-glaſſes.

For this purpoſe ſome may be ſowed about the middle or latter end of May, if warm dry ſettled weather, ſowing ſome firſt in a warm compartment, but if a cold or very wet ſeaſon, defer the principal ſowing till the beginning of June; for if the ground is cold and wet, the ſeed will rot; however, do not omit the ſeaſon, either in May or June as above, or may ſow ſome at both theſe times, or if the May ſowing fail, ſow again in the beginning of June; for if the plants are not in ſome advanced growth in that month they will not be forward enough to produce fruit before the middle of Auguſt, and they ſeldom continue in tolerable bearing longer than the middle of September.

Allot for this crop a compartment of the richeſt ground, either a vacant ſpace, or between early crops of plants that will ſoon come off, as cauliflowers, cabbages, &c. let the ground be very well digged, and formed into beds ſix feet wide; and along the middle of each, form, with the hand, ſhallow baſon-like holes, ten or twelve inches wide, one or two deep in the middle, and a yard or four feet diſtance; and in which ſow eight or ten ſeeds, near together in a clump in the middle, about half an inch deep; but when the plants come up, theſe to be thinned to four, five, or ſix in each hole.

Obſerve, if, immediately after ſowing, the weather proves dry, hot, and ſunny, it will be beneficial to ſhade the earth of the holes ſlightly with a little looſe litter; and in dry hot weather, give only very light waterings till the ſeed is germinated, as before that ſtate too much moiſture would rot it in the ground; but after the plants are up, give frequent moderate waterings if a dry ſeaſon.

In the culture of the plants when up, they, when advanced a week or two in growth, while in the ſeed leaves, or the rough ones juſt appearing, ſhould be thinned to four, five, or ſix of the ſtrongeſt in each hole, drawing a little earth to the ſtems, and give water, to ſettle the looſened earth in thinning cloſe about the roots; and, in their more advanced ſtate, apply earth between, and preſſing it gently towards the ſtems, to incline the heads of the plants in different directions as they are to run; and when they puſh runners, train thoſe along alſo in the ſame regular order; ſupplying them now, in this period of growth, with plentiful waterings in dry hot weather, three or four times a week, or ſometimes occaſionally every day, in July and Auguſt, &c.

This crop will commence bearing the beginning or middle of Auguſt; obſerving, when the fruit is required for pickling, it ſhould be gathered while green and young, of only two or three inches length; and for which purpoſe, looking over the plants two or three times a week, gather all that are of a proper ſize each time, or ſome may be left to acquire larger growth for preſent eating.

As ſometimes in ſowing cucumbers for the above crop in the open ground, a cold wet ſeaſon is apt to rot the ſeed in the earth, in which caſe the ſeed is occaſionally ſowed in a hot-bed, to raiſe the plants of a few days or a week old to plant out in the above order; for which purpoſe make a ſlender hot-bed, the middle or latter end of May, earthed at top three or four inches thick, and defended either with a frame or hand-glaſſes; ſow the ſeeds thick in drills, or dotted in cluſters in ſmall holes half an inch to an inch deep, about two inches aſunder; and when the plants are come up, not more than a week or ten or twelve days old, while in the ſeed lobes, take them up with a garden trowel, ſeveral together, in a bunch, as they grow, with a ſmall clump of earth about the roots, placing them carefully in a flat baſket, to carry them to their allotted ſtation in the open ground, and plant them in ſhallow baſon-form holes, in the order and diſtance before directed for the ſeed, a clump of plants in each hole,

hole, and watered; they will quickly take root, ſcarcely diſcovering any check from removal, will grow freely, and produce plentifully; managing them as directed in the former crop.

In ſowing or planting cucumbers in the above ſeaſon, May or June, in the natural ground, ſome may be placed cloſe to a ſouth wall, paling, or hedge, for the runners to be trained thereto, that by elevating the fruit from the ground, it may be produced of a clean growth, free from ſpots, in a wet autumn, and be better flavoured; and, being in a warm ſituation, will continue longer in bearing than thoſe in an open expoſure.

Or, as cucumbers are climbing plants, aſcending by their tendrils upon any adjacent ſupport of ſticks or buſhes, ſome branchy ſticks may be placed to a few holes of good plants in July; they will readily catch hold, and mount in an elevated growth, and, in warm ſeaſons, produce handſome clean fruit.

Alſo cucumbers may be ſowed or planted in pots, to remove therein where occaſionally required, and have ſticks placed for them to climb upon.

Or occaſionally, in unfavourable, cold or wet ſeaſons, ſome holes of cucumbers, ſowed in the open ground, as above, may be defended with ſome ſpare hand-glaſſes till the plants come up, and are a little advanced; it will prove beneficial in bad weather, in forwarding them from the beginning in a free growth.

To all which crops of natural-ground cucumbers, when come up, give neceſſary ſupplies of water in dry weather, and which, in the advanced growth of the plants, and, when fruiting, will be required in larger quantities, once in two days at leaſt, or ſometimes, in a very dry hot ſeaſon, they will need watering once or twice every day: and a morning, or afternoon towards evening, are the moſt proper times for performing this buſineſs, in the hot months of June, July, and Auguſt, that the moiſture may have time to reach the roots effectually, before exhaled by the great power of the ſun.

To raiſe them for early Crops in Hot-houſes, &c.

Having thus far given the principal directions in the culture of early, general, and late, crops of cucumbers, in the frame, and hand-glaſs hot-beds, and in the natural ground, here follows the eſſential particulars for raiſing early crops in a hot-houſe, or pine-apple ſtove, where it may be required.

Where there are the conveniencies of pine-apple ſtoves, or other glaſſiary apartments, warmed internally by artificial moiſt heat of bark-beds, aſſiſted by fire heat in winter and ſpring, cucumbers may be raiſed and fruited early, often in good perfection, with leſs trouble than in dung hot-beds under frames, though not always with equal certain ſucceſs: it however is worth the trial, and is effected either by previouſly raiſing the plants in a dung hot-bed, in ſmall pots, till in the rough leaves, then removed into the hot-houſe, or by raiſing them wholly therein, agreeable to the following methods:

The ſeed may be ſowed in December, January, or February, either in a dung hot-bed, under frames and glaſſes, and the young plants of three or four days old, in the ſeed leaves, pricked in ſmall pots, as directed in the frame culture, and afterwards, when advanced in the rough leaves, tranſplanted with the balls of earth to the roots into large pots (16's or 24's), or in long narrow boxes or troughs, of rich earth, in the hot-houſe, to remain for fruiting; or ſowed in pots plunged in the bark-bed of that department; and the young plants in the ſeed leaves, pricked in ſmall pots as above, plunged alſo in the bark-bed till forwarded in the rough leaves, or preparing to puſh the firſt runner buds; then turned out with the balls of earth, and planted into larger pots or boxes, where they are to remain; or ſeed may be ſowed at once to remain in the ſaid larger pots, &c. and in which, if the plants come up long ſhanked, earth them up by degrees, inclining them different ways in a ſlanting direction.

Obſerve generally to place theſe larger pots or boxes, in which the plants are to fruit, upon hanging ſhelves, near,

near, or within from about twelve to fifteen or eighteen inches of the top-glaſſes, behind, principally over the back walk, or where moſt convenient, not to ſhade, or prove detrimental to the plants below; that, by being near the glaſſes, they may enjoy all poſſible benefit of the ſun, which is of very material advantage to theſe plants at the above early ſeaſon.

Give them neceſſary waterings, as the earth becomes dry; and when the plants extend their runners, place ſmall ſticks, or thin ſlips of wood, or laths, in a proper direction, on which to ſupport and train them out in regular order.

When the plants arrive to a fruiting ſtate, and according as they ſhew fruit in bloſſom, let the female or fruit bloſſoms be ſet or impregnated with the farina of the male flowers, as directed in the early frame cultures; and the fruit will thus grow freely to a proper growth in due abundance.

Saving Cucumber Seed.

To ſave cucumber ſeed for future ſowing, leave ſome of the handſomeſt fruit, in ſpring and ſummer, to grow to full ſize, both of the early, general, and late crops, if required, at different times, from April, May, or June, till September, and they will ripen plenty of ſeed accordingly, in ſpring, ſummer, and autumn.

On this occaſion it is of importance to leave fruit for ſeed principally upon ſuch plants as are remarkable for quick and plentiful bearing, ſhewing fruit ſoon in their early growth, at the firſt, ſecond, or third joint from the root, which is very material, for early crops in particular, to have the greater chance in the future plants raiſed from the ſeed thereof fruiting in the ſame order; permitting the fruit to attain full growth on the plants till they change yellow, then gathered, ſet upright againſt a wall in the ſun for a week or two in dry weather, then take out the pulp and ſeed together, and waſh out the ſeed from the pulp in a tub of water; afterwards ſpread to dry, and then put up in papers, or bags, boxes, &c. for future ſowing next year, or for ſeveral years to come.

For cucumber ſeed will retain its vegetative property eight, ten, or twelve years; though two or three, to four, five, or ſix years, is a good age for ſowing; at leaſt, ſeed of two, three, or four years old, produce plants of a more moderate growth than new ſeed, and thereby generally ſhew and ſet fruit ſooner, as before explained in its proper place.

ASPARAGUS,

Commonly called Sparagus, or Sparrowgraſs (Aſparagus officinalis), *or officinal 'Sparagus.*

ASPARAGUS is a hardy perennial plant; the young ſhoot-buds of its advancing ſtalks are the eatable parts, when from two or three to five or ſix inches in length; May and June the principal ſeaſon in the natural-ground crops; and, in winter and ſpring, by forcing in hot-beds; is raiſed only from ſeed ſowed in the ſpring for planting out the ſpring following, at a year old, a foot diſtance in four feet and half wide beds; attains a proper growth for gathering the third year after planting; and the ſame crop continues ſeveral years in good production: or, if required for forcing in winter, a portion muſt be ſowed and planted, as above, every year to have a regular ſucceſſion of three-years old plants, of eligible ſize to produce proper-ſized ſhoots when planted in the hot-beds, as the forced plants never produce but one crop; but the natural plantations continuing in annual production many years, in May and June, then the ſhoots being generally permitted to run to ſtalks till October, when they ripen ſeed in ſmall red berries, and then decay: but the roots remaining, produce again each ſucceeding ſpring and ſummer.

The varieties of aſparagus are,

Batterſea aſparagus.
Deptford aſparagus.
Graveſend aſparagus.
Reading aſparagus.
Dutch aſparagus.

Theſe different varieties are of one and the ſame ſpecies, not diſcovering any difference in their growth, only

only being raiſed in greateſt perfection in ſome particular places, are diſtinguiſhed accordingly by the above names.

Aſparagus is raiſed only from ſeed ſowed the latter end of February or any time in March, or not later than the beginning of April, in a bed or beds of rich light earth, either broad caſt and raked in, or in drills an inch deep and ſix inches aſunder; the plants coming up the ſame year require only to be kept clean from weeds till next ſpring, or not older than the ſecond; then planted out, finally to remain, though I would generally recommend one year old plants: and from the time of ſowing and planting it will be the third or fourth year before the plants produce ſhoots of tolerable ſize for general gathering.

Obſerve, that for the natural ground aſparagus one crop ſowed and planted once in ſeveral years is ſufficient, as the ſame roots continue of many years duration producing plentiful crops of ſhoots annually.

But for forcing, ſome muſt be ſowed and planted every year, to have a proper ſupply of three years old plants advancing in ſucceſſion for each hot-bed.

For the intended plantations of aſparagus, raiſed from ſeed as above, allot a conſiderable compartment of the richeſt dry-lying ground, which ſhould be very well dunged, not leſs than ſix inches thick, but if more the better, eſpecially as this crop will be of many years continuance in the ſame place; and let the dung be digged in regularly, a good ſpade deep.

Then for planting, March and beginning of April is the proper ſeaſon; the plants now conſiſting only of roots, and growing cloſe together in the ſeed-bed, have them carefully fork-digged up with a garden fork, as entire as poſſible, gathering them regularly in a baſket or wheel-barrow ready for planting; and dividing the ground into beds four feet and a half wide, with two-feet wide alleys between the beds; each bed is to have four rows of the aſparagus planted longways a foot aſunder; beginning at the firſt bed, range a line along nine inches from the outward edge, and with a ſpade cut out a ſmall trench or drill inſide of the line, ſix or

eight inches deep, the ſide next the line upright; plant a row of aſparagus againſt the upright ſide a foot aſunder, with the crowns two or three inches below the ſurface, drawing a little earth to the roots, to fix them where placed, till the row is planted; then rake the earth over them an equal depth as above; and in this manner plant four rows in each bed, a foot diſtance; when all is planted, rake the ſurface ſmooth; or may firſt ſow a thin crop of onions this firſt year, and rake in the ſeed, then placing a ſtout ſhort ſtake at the corner of each bed, ſerving as a mark of the proper width of the beds and alleys. The aſparagus will come up ſlender the firſt ſummer, conſiderably ſtronger the ſecond, permitting them the firſt and ſecond years to run all to ſtalk; the third they will produce buds of proper ſize for gathering, moderately of the largeſt for a week, or fortnight, or three weeks; and the fourth year will produce ſhoots in full perfection to commence the general gathering during the principal ſeaſon, May and June, and will continue in full production for eight, ten, or twelve years to come, in the proper ſeaſon, as above.

When deſigned to plant aſparagus for forcing, to be taken up the ſecond or third year to plant in hot-beds for that purpoſe, they ſhould be planted firſt in the natural ground, as above, but generally in five or ſix feet wide beds, with the rows only nine inches aſunder, by ſix to nine inches in the rows, as they are to remain only two or three years, till they attain due ſtrength to produce proper ſized buds or ſhoots for gathering; or may be planted in continued rows that diſtance, without forming the ground into beds; they will be of eligible growth to take up for forcing, ſometimes the ſecond, but at moſt the third and fourth year; obſerving, none ſhould be gathered while in the natural beds. See the *Method of forcing Aſparagus*, hereafter explained, p. 54.

In the above plantations for forcing, as it is not neceſſary to land them up in winter, as in the continuing natural crops, rows of ſmall cabbage coleworts may be planted the firſt and ſecond year in October, between the rows of aſparagus for winter and early ſpring ſervice.

Keep

Keep the plantations of aſparagus very clean from weeds all ſummer, by timely hoeing in dry weather, or occaſional hand weeding.

In the firſt and ſecond ſummer after planting, as they will advance with but ſmall ſhoots, generally permit all the plants to run wholly to ſtalks till October or November, when the ſtems will be decayed; ſhould then be cut down, and all weeds cleared off the beds into the alleys, then the alleys to be digged a moderate ſpade deep, burying the weeds in the bottom; and as you proceed, ſpread ſome of the earth evenly over each bed, one or two inches thick, to remain thus till March or April, then have the ſpring dreſſing by ſlightly fork-digging the beds and raked ſmooth.

But as in the third and fourth year from planting, they will produce proper ſized ſhoots to gather, obſerving generally in the third year gather only principally the largeſt for the firſt two or three weeks, or more or leſs, as it may ſeem eligible, according to the ſtrength of the general production of ſhoots, which if rather weakly, deſiſt from gathering the ſooner, and let the whole run to ſtalks; however, in the fourth year commonly commence the general gathering of the whole production large and ſmall, during the principal ſeaſon, from the latter end of April, or beginning of May, to the end of June, after which, or beginning of July, as the produce will then come up conſiderably thinner, and the ſhoots ſmaller in ſize, it is proper, both in this and every following year, generally to decline the principal gathering, that the roots may not be weakened by too long repeated production; and at which time permit all the ſhoots to run and advance in ſtalks till the middle or end of October, when they will ripen, ſeed, and decay; then, or beginning of November, to be all cut down, and the beds have the winter dreſſing, as before mentioned, to remain till March or April, and then have a ſpring dreſſing, each to be repeated every year, as directed below.

Aſparagus beds require two principal dreſſings annually, a winter dreſſing to cut down the decayed ſtems, and to clear the beds from weeds and land them

up, and a ſpring dreſſing to fork-dig and rake them even.

The winter dreſſing ſhould be commenced about the end of October or beginning of November, by cutting down the decayed ſtems to the bottom, and hoe off all weeds on the beds into the alleys, which latter then mark out by line and ſpade the proper width of two feet; then dig each alley longways a moderate ſpade deep, ſpreading a good portion of the earth, equally to the right and left, evenly over the beds two or three inches thick, forming it full and even at the edges, digging down the weeds as you proceed into the bottom of the alleys, a proper depth, and level the ſurface regularly: thus this work of winter dreſſing, and landing up the beds, muſt be continued every year at the above ſeaſon, obſerving, in the more advanced ſtate of the plants, to land up a thicker ſubſtance of earth over the beds than in the firſt year or two, generally from two to three or four inches depth is ſufficient; and to remain thus till the ſpring.

When the beds are thus landed up in October, &c. a row or two of coleworts may be planted in each alley, if thought convenient, or in November or December, &c. plant a row of early or long pod beans; or, if required, may plant rows of coleworts or cabbage lettuce on the beds, to come off early in the Spring, or by March or beginning of April.

The ſpring dreſſing is proper about the latter end of March or beginning of April, preparatory to the buds beginning to puſh from the roots, which conſiſts of fork-digging the beds a ſmall depth, to looſen the ſurface, both to improve the ſoil, and that the ſhoots may have all poſſible advantage to advance in a free growth; having a proper aſparagus fork of three ſhortiſh, flat, blunt-ended tynes, or, in default of this, a ſhort tyned dung fork, and with either of which fork-dig the beds longways very lightly the firſt and ſecond year, nor afterwards more than three or four inches depth, not to wound the roots; and when thus forked, either rake the beds directly, or in a week or a fortnight after, juſt before the aſparagus-buds begin to advance,

which

which will be like a ſecond dreſſing, by again looſening the ſoil, and will alſo retard the growth of ſeed-weeds, raking the ſurface even, drawing or trimming off the rough ſurface earth and hard clods into the alleys.

After this dreſſing, may plant a row of beans, forward heading cabbage, cauliflowers, coleworts, &c. in the alleys between the beds.

As before remarked, the aſparagus in the third year after planting, will produce ſhoots of a tolerable ſize, to begin gathering the ſtrongeſt; but if they advance rather ſmall, gather ſparingly, and not continue it after the firſt fortnight or three weeks; but in the fourth year, or when the ſhoots in general riſe of good ſubſtance, proceed in a general gathering from about the latter end of April or beginning of May till the middle of June, but not continued longer than the end of that month or beginning of July, as it would weaken the roots; and obſerving that when the buds are from two or three to four, five, or ſix inches long, while cloſe and firm in the heads, they are of proper ſize for cutting.

In performing the gatherings, being furniſhed either with an aſparagus knife, with a ſtraight narrow blade tapering to the point, and the edge teethed like a ſaw, or with any other convenient knife, thruſt it down perpendicularly cloſe to each ſhoot, not to wound the buds advancing in ſucceſſion below, cutting them off ſloping downward three or four inches within the ground; and generally in each gathering, after the third or fourth year, cut all the ſhoots that occur, large and ſmall, advanced to the forementioned proper length of two or three to four, five, or ſix inches: and the roots will continue ſending up ſucceſſional ſupplies accordingly for gathering two or three times a week.

The aſparagus beds will require manuring occaſionally, or once in two or three years, and the proper time for this is at the winter dreſſing, when, after cutting down the decayed ſtems, and cleared off all weeds from the beds into the alleys, apply ſome good rotten dung of old hot-beds, or any other, ſpread over the beds two or three inches thick alſo in the alleys, then

fork it in lightly in each bed, and then dig the alleys, burying the dung laid therein regularly, and ſpread ſome of the earth evenly over the beds, about two inches thick; and in the ſpring fork the beds, the dung and earth together, and rake them as before directed.

Method of forcing Aſparagus in Hot-beds, for Winter and early Spring Crops.

Where aſparagus is required in early production in winter and ſpring, it may be obtained by planting three years old plants, from the tranſplanted beds in the natural-ground, into hot-beds, which may be commenced the latter end of September, beginning or any time in October, November, or December, &c. according to the time the aſparagus may be wanted for gathering, or the convenience of hot dung for the hot-beds, proper ſupplies of plants, frames and glaſſes, &c. allowing five or ſix weeks from the time of making the hot-bed and planting therein, till the buds arrive to perfection; and that by planting a freſh ſupply, in a new hot-bed every month, a ſucceſſion of aſparagus is obtained all winter and ſpring, till the middle or end of April, or beginning of May, when the natural ground productions will commence to ſucceed them in proper growth for gathering. This forcing is effected by means of ſubſtantial hot-beds of hot dung, a yard or more high, and defended with frames and glaſſes; but the beds are firſt earthed ſix or eight inches at top, the aſparagus plants placed upright upon the earth, as cloſe together as they can ſtand, and earthed over the crowns from one or two, to five or ſix inches; and when the great heat of the bed is ſubſided, in a week or fortnight, or more, after planting, the frame and glaſſes are to be placed on the bed.

For this buſineſs of forcing aſparagus, it is neceſſary to have a conſiderable ſupply of three or four year's old plants, that have been raiſed in the natural ground to the proper age, by ſowing and planting as before directed; and when they are of two or three years growth in the tranſplanted natural beds, are generally arrived to an eligible ſize and ſtrength for forcing, ſo as to produce proper ſized buds for the table; and of which, for each

each new hot-bed, provide a ſufficiency, either of your own raiſing, or obtained by purchaſe at the nurſeries or market gardens, in quantity at the rate of from about ſix or ſeven to eight or nine hundred or more, according to the ſize of the plants, for a hot-bed, the dimenſions of a three-light garden frame in width and length, or in proportion for two, three or more ſuch frames in a range: for in hot-beds they ſhould be placed as cloſe as they can poſſibly be crowded together, in order to their producing in conſiderable abundance, proportionable to the expence and trouble of forcing; as, in this mode of culture, the ſame plants never produce but one crop, and which continues only about a fortnight or three weeks in production: obſerving, as the plants conſiſt only of roots, let them be fork-digged up as wanted, with the roots as entire as poſſible, and collected ready for planting in the hot-bed. And for the hot-beds, ſhould be provided with plenty of moderately freſh horſe-ſtable dung, abounding in a moiſt lively heat, the long and ſhort together, and forked up in a mixed order in an heap, for a week or fortnight or more, to ferment and prepare equally to a proper temperature (*ſee hot-beds*); and with one, two, or ſeveral common three-light garden frames to place on the beds.

Make the hot-beds for this purpoſe principally on the level ground, in a warm, dry, ſituation; in dimenſions for one, two, or more garden frames, in a range lengthways eaſt and weſt, fronting fully to the ſouth ſun, raiſed a yard or three feet and half high in dung, and about ſix inches wider than the frames, to admit of containing a ſmall rampart or caſing of earth againſt the outſide roots after planting, and before the frames are placed on the beds; then, as ſoon as the bed is made, but without as yet putting on the frames, as the mode of planting does not admit of it, nor till the firſt violent heat is abated, prepare for immediate planting, in order to have all poſſible advantage of the heat of the bed from the beginning, by directly earthing the top with any light rich earth, ſix to ſeven or eight inches thick, to the width of the intended frames, and, preparatory to planting, raiſe a ſmall ridge of earth croſs ways one

end at top five or ſix inches high, againſt which to place the firſt layer of plants upright; and then marking out on the earth of the bed the width of the frames aforeſaid, proceed directly to put in the plants, beginning at one end, and either placed entirely on the ſurface of the earth, to be more diſtant from the firſt great heat of the dung below, leſs liable to danger of burning; or, making a ſmall opening at one end, cloſe to the aforeſaid little ridge of earth, two or three inches deep, inſert them a little into the earth; and, in either method, place the firſt courſe of plants againſt the above little croſs ridge of mould, upright, and as cloſe together every way as poſſible, either wholly on the ſurface, as above intimated, without adding any earth about them; or, if inſerted a little, apply a ſmall portion of mould to the bottom of the roots of each layer, from the ſide of the openings in which they are inſerted; and thus, in both methods, place more plants againſt the firſt layer, in the ſame cloſe order; and in like manner continue placing the reſt, the roots cloſely gathered, and crowded one againſt another as cloſe as they can poſſibly be placed, with the crowns of them upright, all an equal height, continued to the full width and length of the bed, according to the dimenſions of the frame or frames, as previouſly marked on the ſurface of the earth; they will effectually ſupport one another, and ſtand firmly in the poſition as above placed, the outſides to be caſed or banked up with earth, and earthed over the crowns, which completes the firſt eſſential buſineſs of planting, according to the directions following.

Then directly, as ſoon as all is planted, bank up ſome moiſt earth, as a caſing, againſt the outward roots all round, raiſed either only from the top of the bed, if room on each ſide and ends, or carried up quite from the bottom cloſe up the ſides of the bed, which will alſo ſerve to keep in the heat, and defend the bed from driving wet; continuing it, in either method, an inch or two higher than the crown of the plants; but, if banked up only from the top of the bed, it will admit of lining the ſides below more effectually with hot dung, to renew the heat of the bed when it decreaſes;

and

and when thus banked up, as ſoon as the planting is finiſhed, then immediately, with ſome light fine mould, earth over the crowns of the plants, only one or two inches depth at firſt, eſpecially if a ſtrong hot-bed of long extenſion, for fear of confining the great heat and ſteam too conſiderably to occaſion burning below, or ſteam-ſcalding the bottom of the roots; but the depth of earth to be augmented hereafter, by degrees, to five or ſix inches, in a week or fortnight after, when the heat is reduced, and the aſparagus buds advancing. However, the above firſt covering of earth completing the buſineſs for the preſent, the plants will ſoon ſtrike their root-fibres down into the earth, and begin to ſhoot above, the frames and glaſſes ſtill remaining off, if a ſtrong bed of powerful heat, and not put on till the heat is moderated; and, as a direction for this, have ſome long ſharp-pointed ſticks thruſt down into the middle of the bed, in different parts, at proper diſtances, that by pulling them up daily, and feeling the lower end to try the temperature of the heat, and when this diſcovers a moderate ſtate, it is time to add more earth, and put on the frames and glaſſes; but obſerving if, in the interim, very heavy rains, or great ſnow fall, either ſet on the frame, and the bed defended with the glaſſes in ſuch unfavourable weather, or give protection occaſionally at ſuch times with a thick covering of long litter and garden mats; for exceſſive wet would either, in the early ſtate of the bed, cauſe it to heat in an encreaſed violent degree to a burning quality, or ſometimes make the heat ſuddenly decay, and, in either of which, prove very detrimental to the crop.

Obſerving, however, that as in a week or fortnight after the hot-bed is made and planted, and the crowns of the plants earthed over as above, with the firſt covering of earth, the plants, by the ſtrong heat of the bed, will have ſtruck root below, and begin to puſh buds at top, proceed accordingly to make preparations to add three or four inches of more earth, and for the reception of the frames and glaſſes, when the violent heat is abated; firſt, in order to contain the additional covering of earth, before the frame is placed on the bed,

make a large ſtrawband wreath with any long ſtrawey-litter, three or four inches thick, in one, two, or more lengths, to reach quite round upon the top of the bed, in order to be fixed thereon, cloſe to the edge, and having a quantity of ſmall ſharp-pointed pegs, ten or twelve inches long, place the ſtraw-wreath along upon the top of the banking, or outward rampart of earth, cloſe to the edge of the bed, fix it down regular all round, with the pegs ſtuck through the wreath into the earth; and, when thus fixed, it ſerves both to contain the neceſſary augmentation of earth, and alſo on which to place the frame; or, inſtead of this wreath, the outer caſe or banking of earth, if width enough, may be raiſed three or four inches for that purpoſe: then, in either of which, add the additional earth, either only about two inches thick, if the heat below is ſtill conſiderable; otherwiſe lay it three or four inches deep at once; and, if the heat is moderate, ſet on the frame and glaſſes; but, if ſtill violent, keep them off a few days or week longer, or till the aſparagus begin to appear again through the ſurface, eſpecially if earthed now only about two inches; and if, in the mean time, great rain, ſnow, or ſevere weather occur, either put on the frames and lights as formerly obſerved, or defend the top of the bed with mats or ſtraw litter; though obſerve, that as ſoon as the heat below is become of a moderate ſtate, or, at fartheſt, as ſoon as the buds advance, ſet on the frame, add the neceſſary ſupply of more earth, making the whole five or ſix inches depth, and put on the glaſſes.

The bed being thus framed, and earthed the full depth, and the glaſſes on, give proper air and vent for the ſtrong ſteam every day, but more freely the firſt week, by tilting or ſhoving down the lights one, two, or three inches, in the warmeſt time of the day; and when the heat of the bed begins to decline conſiderably, probably in a fortnight or three weeks after it is made and planted, or as it may appear neceſſary, be careful to revive it in proper time by application of hot dung to the ſides, as explained below.

Obſerve,

Obſerve, however, after planting the bed as above, that as ſometimes in its early ſtate, notwithſtanding the greateſt attention, it will heat ſo violently as to endanger burning the earth, ſcorching the roots, or ſteam-ſcalding them by the rank hot moiſt ſteam from the dung, which you will carefully examine daily, and if any conſiderable over-heat is diſcovered, give it all poſſible vent above and below, and by piercing the ſides of the bed with thick ſtakes, making large holes, horizontally, two or three inches wide, both in the dung and between the top thereof and earth, leaving theſe open two or three days, or more, for the vehement heat and ſteam to evaporate at the apertures, without reaching the plants, or burning the earth in which they are to grow; and when the heat, &c. is reduced to a moderate ſtate, cloſe up the holes, and manage the bed in the common way, as above.

But obſerve, likewiſe, in the advanced ſtate of the bed, after it is fully earthed, and the frame and glaſſes on, and it proceeds in a regular heat, be careful to continue it in that ſtate when it begins to decline, by applying a lining of hot dung to the back, then to the front, fifteen or eighteen wide, raiſing it by degrees as high as the dung of the bed; to which the linings will communicate a reviving heat to continue the plants in a free growth, during the time of their principal production; or probably the linings may want renewal, by forking over, adding a portion of freſh dung, mixing the old and new together, and apply it to the ſides of the bed again as above.

The plants will ſoon ſhoot their roots down into the earth below, and ſend up buds plentifully above; and advance in full production in four, five, or ſix weeks, riſing thickly all over the bed in a quick growth, and afford a gathering two or three times a week for a fortnight; and, in three weeks, the main production will be moſtly terminated.

But to have a regular ſucceſſion of forced aſparagus, ſhould make a new hot-bed every three weeks, or a month at fartheſt, and put in a ſupply of freſh plants for each bed, as forced aſparagus never produces but once, as before remarked.

Obſerve in the different beds, when the plants are in production of ſhoots advancing above the earth, to admit air daily in all moderate weather, by tilting the glaſſes behind, or ſliding them down one, two, or three inches, according to the heat of the bed, and temperature of the external air, both to ſtrengthen and promote a good colour in the ſhoots, which otherwiſe would draw up too faſt in a long weakly growth; always giving air more freely when a warm ſun than in cloudy weather; and in fine mild days when a full ſun, eſpecially towards ſpring, and a good heat in the beds, may ſometimes draw the glaſſes entirely off, for two, three, or four hours, in the middle of the day; then put on again. Alſo, in open mild weather, and plenty of ſun, give ſometimes a moderate watering in a forenoon, when the earth appears dry. Keep the glaſſes moſtly cloſe of nights, except when a great heat in the bed, then may admit a ſmall portion of air, as above, by opening the glaſſes an inch or two; continuing to cover the glaſſes every night with garden mats, or long ſtraw litter, and uncovered every morning; though in winter, when very rigorous froſts, and no ſun, uncover only in the warmeſt time of the day; but always give them as much light and ſun as poſſible, in all moderate weather, to ſtrengthen the ſhoots of a proper ſize for gathering.

In gathering forced aſparagus, that as the buds come up very thick, advancing, in different ſtages of growth, above and under the earth, it is beſt performed by hand, not cut, but thruſting the finger and thumb down near the roots, and, with a gentle twiſt, the ſhoots will readily ſnap off to the bottom.

Aſparagus Seed.

To ſave aſparagus ſeed for ſowing, mark ſome plants of the fineſt production of the natural crops, in June or July, when they are running to ſtalk; and in October the ſeed, contained in red berries, will be ripe; then cut up the ſtalks, and ſtrip off the berries, rub and waſh away the pulp from the ſeed, which then dry properly, and put up in bags, &c.

ARTI-

ARTICHOKE,

In the Botanic Syſtem, is Cynara Scolymus; (Scolymus) or Common Artichoke.

THE ARTICHOKE, conſiſting of two varieties, are large perennial plants, producing annual crops of large globular and oval heads, compoſed of many rigid ſcales, of which the fleſhy ſubſtance at the baſe, and that of the receptacle or bottom of the head, are the eatable parts, boiled and eaten with melted butter; alſo the bottoms or ſtools, to pickle or preſerve; growing to perfection in July, Auguſt, September, till November; the plants always propagated by young ſuckers from the roots, in the ſpring; one crop planted in rows, four feet and half by a yard diſtance, produce heads the ſame year; and they, continuing by the roots, furniſh a crop of artichokes annually, in good perfection, for three or four years or more; then renewed by a freſh plantation; or ſome planted annually, in order to obtain, in the old and young plants together, a longer ſucceſſion of heads every ſummer and autumn.

The varieties of artichokes are,

1. Globe artichoke, having a large globular head, with broad, obtuſe, reddiſh-green ſcales.
2. Oval or French artichoke; having a ſmaller oval head, with narrower more pointed green ſcales.

Of theſe two varieties, the firſt is preferable for the main crop, the heads being larger, with the fleſhy eatable parts of the ſcales and bottom of a thicker ſubſtance, and more agreeably-flavoured than the other; though it is proper to have ſome of both ſorts, to afford occaſional variety at table.

Theſe plants ſhould have good ground, in an open ſituation; the ground well dunged, and this digged in one full ſpade deep.

They are raiſed from ſuckers ariſing from the roots of the old plants in the ſpring, in March or April, and which, when from ſix to eight or ten inches growth,

are of proper ſize for planting. Slip them off cloſe to the old ſtool, with ſome root part to each; detach any broken, bruiſed, or decayed outer leaves; cut even the tops of long ſtraggling ones, and cut off any hard woody part occurring at the bottom of the root; then plant them, by dibble, in rows four feet and a half aſunder, by two or three feet diſtance in the rows; give water as ſoon as planted; and afterwards, occaſionally, in dry weather, till they take root and grow.

Between the rows of artichokes, may ſow a thin crop of ſpinach, radiſhes, or turneps, &c. or plant rows of coleworts or cabbages, to cut in their young growth.

Keep the artichokes clean from weeds all ſummer, by hoeing the ground between the plants, in dry weather, which is all the culture they require in that ſeaſon.

They will begin to produce heads in Auguſt and September, and continue till October or November; but, in the ſecond year, will begin to produce heads in June or July; obſerving that, in the advancing growth of the heads, if required to have the principal top ones attain the largeſt ſize, may detach ſome of the ſmall lateral ſuckers, or ſide heads, in their young cloſe growth, in which they are alſo proper for uſe in ſome culinary occaſions; and the main heads, remaining to attain full perfection, are of eligible growth when the ſcales begin to expand; but, before they open in the heart for flowering, cutting them with part of the ſtem; and, according as the heads are gathered, generally break down the remaining ſtalk cloſe to the ground to encourage the roots to form ſuckers more effectually for future production.

As before remarked, a plantation of artichokes will continue in annual production ſeveral years; but as after which they will decline in the ſize of the heads, and the fleſhy eatable parts be of leſs ſubſtance, therefore ſhould make new plantations accordingly once in three or four years, as it may ſeem neceſſary.

Or as a plantation of artichokes, after the firſt year, produce only principally in ſummer, June, July, and Auguſt, that if ſome are planted every year or two, the

young plantation will furniſh a ſucceſſion of heads in autumn from Auguſt or September till November or December; and according as the old plantations decline in producing good heads, ſome may be demoliſhed by degrees, in proportion to what are planted; and by this you will have a conſtant ſupply of artichokes in thorough perfection, from the earlieſt production in ſummer to the lateſt in autumn.

Of the late autumnal artichokes in October and November, ſome may then be cut with the full ſtem to each head, and placed in a cellar, or any dry apartment, ſetting the ſtems of them upright in ſand; they will continue good for uſe in winter.

With regard to the general culture of artichokes, they in their growth, all ſummer, require only to be kept clear from weeds, by occaſional hoeing the ground between the plants, and according as the production of heads are gathered for uſe, to break down the ſtems thereof cloſe to the ground, as before obſerved, and clearing away the large under decayed and broken leaves; and in winter to have all the large leaves cut down, and the rows of plants landed up to protect them from froſt; remaining thus till ſpring; then to have the ridges levelled down, and all the ground digged between the plants, and the ſuperabundant ſpring-ſhoots detached to three on each ſtool.

But as the winter and ſpring culture require a particular and ſeparate explanation, ſee each as directed below.

The winter dreſſing, or culture, conſiſting of cutting down the large leaves, and digging the ground in a ridge over each row of plants, is performed in November or December. Firſt cut down the large leaves, all to the ſmall central hearts, then dig the ground along each row, and half way the interval on each ſide, working the earth gradually from both ſides into a ridge, towards the middle, over the roots, and cloſe about the plants, leaving only the central ſhoots, or hearts, clear, proceeding thus, row and row, till the whole is landed up; which done, is to remain till the ſpring, in order to preſerve the crown of the roots, and young ſhoot-

buds

buds of the plants, more ſecurely from the effects of rigorous froſts: obſerving likewiſe if the froſt proves very ſevere, it is proper to give them alſo additional protection of dry mulchy dung, or long ſtable litter, laid over the rows, or cloſe about and over each plant, a proper thickneſs, to keep out the froſt; but this, when the weather changes mild, ſhould be removed, eſpecially that immediately over the hearts of the plants, and the whole cleared from about them towards the ſpring, to admit the full air, and to encourage the advancing ſpring ſhoots in a proper growth; continuing, however, the ridges of earth over the rows till March, or beginning of April, as explained in the ſpring-dreſſing.

If the above work of landing up the artichokes ſhould be omitted at the proper ſeaſon, or ſevere froſt occur before that work is performed, it is eſſentially neceſſary to give the plants occaſional protection of covering with mulch or ſtable litter, as ſoon as poſſible; for, in rigorous winters, theſe plants, if not protected, either by landing up, or mulched, are often deſtroyed.

The ſpring dreſſing of artichokes conſiſts of levelling down the ridges landed up in winter, and regulating the ſpring-ſhoots, in leaving two or three of the beſt on each mother ſtool, and ſlipping off the ſuperabundancy, and requires performing every year in March, or beginning of April: therefore obſerving, any time in March, or till the beginning or middle of April, when the plants have advanced a little in their young ſpring-ſhoots, from five or ſix to eight or ten inches long, is the proper time to proceed in that work, at which period dig down the ridges of earth landed up in winter; or, if the landing up was omitted, dig the ground regularly along, and between each row, and cloſe about the roots of the artichokes, looſening the earth clean to the crowns of the plants about the young ſhoots, and as you proceed, examine the number and goodneſs of the ſuckers or ſhoots, advancing on each root or old ſtock, ſelecting about three of the ſtrongeſt outward ones to remain, ſlip off all the reſt cloſe to the root, levelling in the earth cloſe about the remaining ſhoots,

and

and regularly between the rows, all in a level order; and which completing the ſpring-dreſſing, keep the plants clean from weeds all ſummer by occaſional hoeings till November, then to have the winter, before explained.

The young ſhoots or ſuckers ſlipped off in the ſpring dreſſing, as above, being detached clean to the root, ſerve for young plants for making new plantations, as already directed.

Having before obſerved, that as plantations of artichokes will continue ſeveral years, and as thoſe the firſt year do not produce their heads till autumn, about Auguſt, September, or October, afterwards they produce only principally in ſummer, in July and Auguſt; that by planting ſome every year or two, a ſucceſſion of heads is obtained in the old and new plantations from June or July till November.

When intended to demoliſh any old plantation, ſome of the beſt old ſtocks may be digged up in the beginning of winter, and trenched down cloſe together over the crowns under a ſouth wall or hedge, more ſecure from the rigours of ſevere froſt; they will produce a ſupply of young ſuckers, earlier and ſtronger than thoſe in the open compartments, ready for making a new plantation in the ſpring.

In default of young plants of your own, they may be purchaſed at the market kitchen-gardens, or at the nurſeries, at from ten to twenty ſhillings per hundred; though ſometimes, after a ſevere winter, a greater price is demanded.

BROCCOLI,

A Variety of the Cabbage Tribe, (Braſſica Italica*) or Italian Cabbage, commonly called Broccoli.*

BROCCOLI is of the cabbage tribe, not however cabbaging, but ſimilar to the cauliflower in its manner of growth and production, of a cloſe central head, compoſed of numerous advancing flower buds in a compact cluſter in the midſt of the head of leaves, and

and which is the principal eatable part, in perfection the end of autumn, all winter and ſpring, to boil and eat with melted butter, fleſh meat, &c. moſt excellently tender and delicate eating; very deſerving of culture in principal crops for uſe in the above ſeaſons; conſiſting of ſeveral fine varieties, all annual and biennial plants, raiſed from ſeed ſowed annually in two or three different crops, in the ſpring and early part of ſummer, and tranſplanted in an open ſituation a yard to two feet diſtance, in June, July, Auguſt, &c. the early raiſed plants attain perfection the ſame year in autumn and winter; and the late crops head in ſucceſſion the following ſpring; then what remains ungathered ſhoot for ſeed, ripen it in autumn, and then wholly decay.

The varieties of Broccoli are,

Early purple broccoli.
Large late purple broccoli.
Dwarf late purple broccoli.
Green broccoli.
Green ſprouting broccoli.
Brown broccoli.
Black broccoli.
White, or cauliflower broccoli.

Of theſe varieties, the purple and cauliflower broccoli are the principal permanent kinds for general culture, though the green and brown broccoli often both occur accidentally as varieties of the purple, and continue alſo permanent in their reſpective kinds; but the cauliflower broccoli never varies, bears a great reſemblage in its whole growth to a cauliflower, only the head is ſmaller, and not ſo white; in the purple, green, brown, and black kind, they produce heads of thoſe reſpective colours, and the leaves moſtly of a dark green; and the cauliflower broccoli grows more upright in its head of leaves than the purple kind, and of a lighter green colour than that variety.

All the varieties of broccoli, being ſome of the greateſt delicacies of the cabbage family, not inferior to a cauliflower, ſhould never omit cultivating plentiful crops, eſpecially as they are of eaſy culture, but require good ground, which if of a loamy nature will be

an

an additional advantage in regard to the production of ſtrong plants, to afford larger fine heads in proportion. See their culture.

The ſeveral varieties of the purple, green, and brown broccoli, produce, beſides the main head, ſecondary crops of ſide ſprouts, that boil excellently tender and ſweet; but the cauliflower broccoli ſeldom produce any.

The broccoli in general, as before obſerved, is ſimilar to the cauliflower in its mode of growth, and probably an accidental variety of that plant; it growing with an upright robuſt ſtem, with a large head of oblong open leaves at top, which do not cabbage, but in the centre produces a cluſtery head in the manner of a cauliflower aforeſaid, compoſed of the advancing flower ſtalks and numerous ſmall buds; and while this head remains compact and firm, is in beſt perfection for eating; its ſeaſon for uſe is autumn, winter, and ſpring, from October, November, &c. till April or May, as before obſerved.

All the ſorts are propagated or raiſed always from ſeed ſowed every year in the ſpring and ſummer, from March or April till June, and planted out in ſummer and autumn two or three feet diſtance; the ſpring and early ſummer ſowings attain perfection the ſame year in autumn, &c. the late crops not till following ſpring.

That as the different varieties of broccoli are raiſed from ſeed only, it ſhould be ſowed in three or four different crops, to obtain a regular ſucceſſion; firſt ſow an early crop the latter end of March and in April for autumn, a larger crop the beginning of May for late autumn and general winter and ſpring ſupply, and a ſmaller portion the beginning or middle of June for the lateſt ſpring production.

Each ſowing perform in a bed or beds, or open border, of rich mellow earth, rather diſtant from the ſhade of trees, walls, &c. ſowing the ſeed on the ſurface, and raked in with care in a regular manner.

When the plants of each ſowing are two or three inches high, with leaves an inch or inch and a half broad,

broad, thin the ſeed-beds, by pricking out a quantity of the beſt plants into other beds of rich earth, four inches diſtance, and watered; where let them grow a month or ſix weeks to attain a robuſt ſtrong growth, then to be finally tranſplanted in May, June, July, Auguſt, September, in the different crops, ſowed as above.

For their final tranſplanting, allot a rich quarter of ground well dunged, and this digged in one ſpade deep.

Then in May, June, July, Auguſt, &c. taking opportunity of ſhowery weather, if poſſible, tranſplant the broccoli plants, by dibble, in rows two feet and a half aſunder, by two feet in each row, or for the large purple, a yard diſtance is eligible for the main crops planted in June and July; though for late crops planted in Auguſt and September, two feet and a half is ſufficient diſtance; obſerving, as ſoon as planted, give a moderate watering, and occaſionally afterwards in dry weather, till the plants take root and begin to grow.

Then as to future culture, after planting, give occaſional hoeing to kill weeds, and to looſen the earth, and hoe up ſome earth round the ſtems of the plants, repeated once or twice, to encourage a ſtrong growth, that they may produce large cloſe heads accordingly.

The early crops will begin to produce ſmall heads about Michaelmas, or in October or November, &c.

The other crops will ſucceed them in their production of larger heads in winter and ſpring; the main ſpring crops generally produce in the greateſt perfection, in the ſize and cloſeneſs of the heads, in February, March, and April; and the late ſpring crops will continue in production till May.

In gathering the broccoli, it ſhould be done while the heads remain moderately cloſe, generally cutting them with a few inches of the ſtem to each head, clearing away the outer leaves, and retain only the ſmall inner ones which immediately ſurround the head; and in preparing them for dreſſing, peel the adhering part of the ſtalk, then boil them whole.

In the purple broccoli, when the main heads are cut for uſe, the ſtems being left in the ground will pro-

duce

duce crops of fine young ſprouts with ſmall heads; but the cauliflower broccoli, like the cauliflower itſelf, rarely produces any ſprouts.

To ſave broccoli ſeed, leave of the main ſpring crops ſome of the largeſt cloſe-headed plants of February and March, or for large ſupplies, a quantity of young plants ſhould be planted out in June or July, to ſtand till next ſpring; they will run up to ſtalk, and produce ripe ſeed plentifully in Auguſt; at which time be watchful of birds, which will invade the ſeed in great numbers.

CABBAGE.

By the Botaniſts Braſſica (Braſſica oleracea), Oleraceous, or common Kitchen Cabbage.

THE CABBAGE compriſes many varieties of hardy biennial plants, valuable and profitable for principal crops for the ſupply of a family and the markets at moſt ſeaſons of the year, both in their full cabbaged growth, and in their young open green ſtate for cabbage coleworts, the moſt excellent of all open greens; but in their cabbaged heads are in greateſt perfection in ſummer and autumn, from May or June till September or October, and in an inferior degree all winter; and in their young open colewort growth, and in ſmall hearted colewort cabbages, are of great uſe for autumn, winter, and ſpring greens: all raiſed from ſeed ſowed in ſpring and autumn for the principal crops, and in ſummer for ſucceſſional ſupplies, each for tranſplanting, from one to two or three feet aſunder, for young and full cabbages, &c. grow to perfection the ſame year, the ſpring and ſummer ſowings and plantings; and thoſe raiſed in autumn come in the year following for early and main ſummer crops, and principal autumn cabbages: and all of which that remain over winter, ſhoot for ſeed the ſpring enſuing, and become uſeleſs, or if any are left, they ripen ſeed in autumn, and then wholly decay.

The

The varieties of cabbage are,

Early dwarf cabbage.
Early ſmall ſugar-loaf cabbage.
Early large ſugar-loaf cabbage.
Early Batterſea cabbage.
Early London hollow cabbage.
Early Yorkſhire cabbage.
Early Dutch cabbage.
Early Ruſſia cabbage.
Large hollow ſugar-loaf cabbage.
Common large round cabbage.
Large oblong hollow cabbage.
Large late long hollow cabbage.
Large drum flat-headed cabbage.
Large round winter cabbage.
Large Scotch or cattle cabbage.
Large American cabbage.
Red Dutch cabbage.

All theſe varieties are heading cabbages, good to boil, both in their cabbaged growth and in their open green ſtate for coleworts, except the red cabbage, which is principally uſed for pickling; the early ſorts are of ſmall and moderate growth, valuable both for early and general ſummer crops, and for autumn and beginning of winter till November or December, in young looſe hearts, as they quickly cabbage; and the large ſugar-loaf is moſt excellent for a general ſummer and autumn crop; alſo the oblong and long hollow cabbages are admirably fine for the end of ſummer and principal autumn months; all the other ſorts, denominated large, are for late crops in autumn and winter, grow to a large ſize, cabbaging principally in Auguſt, September, and October, and continue the winter, and ſome of which large late kinds are valuable for field crops for feeding cattle, ſuch as the large drum, Scotch, and American cabbage.

The cabbage tribe are very uſeful and profitable crops, to ſupply the table the year round as a principal family vegetable, in their different ſtages of young and full cabbaging, and young green open colewort growth together, they cabbaging in the different ſorts from

May

May till October, or November, or December, and continue all winter, till February or March, in ſome late ſorts both in full cabbaged heads and young ones in ſmall hearts: and in open green coleworts may be obtained abundantly every month in the year; and in both of which they ſhould be raiſed in ſeveral plentiful crops annually to attain perfection in ſucceſſional order, to cut in young, half, and full grown cabbage as required, and as coleworts, while they remain green and open, or juſt beginning to heart.

They are moſtly all good for boiling, though ſome are preferable to others; the very large hard heading cabbages do not boil ſo tender and ſweet as the moderate ſized hollow kinds; and the red cabbage in particular having thick fleſhy leaves, cabbaging cloſe and remarkably hard, is eſteemed chiefly for pickling, and for which it is moſt excellent; alſo occaſionally to ſhred and eat raw with oil, vinegar, &c. in perfection for theſe uſes principally in autumn, winter, and ſpring; for this is a very hardy cabbage to ſtand the winter; the large late round white cabbages are alſo hardy to ſtand for uſe in that ſeaſon.

As there are many varieties of cabbage, it is not neceſſary to cultivate all the ſorts, only ſome of the principal varieties for general culture; two or three of the early kinds, as the early dwarf, early ſugar loaf, and Batterſea kinds, for their quick and early hearting; but theſe being ſmall, ſoon grow hard and burſt, are proper only for the earlieſt crop; the Yorkſhire, early Ruſſia, and large ſugar-loaf, are larger, continue longer in perfection, and very good moderate ſize cabbages for the principal early and general ſummer ſupply, or occaſionally for autumn eating; being excellent boilers, and tender ſweet cabbages, none better than the large ſugar-loaf kind for a principal ſummer and autumn crop; the large oblong, and large long hollow, are very fine for late ſummer and general autumn uſe and winter; though for late autumn and main winter crops of full headed cabbages, the common large round white cabbages, drum, or any other large late ſorts, are proper; but

but generally the round flat headed ſorts are the moſt hardy to ſtand the winter in their full cabbaged growth.

All the ſorts of cabbages thrive beſt in an open ſituation, and the richer the ground is, and if augmented with dung, the more proſperous they will grow.

They are all raiſed from ſeed ſowed every year in two or three, or more different crops, in ſpring, ſummer, and autumn, to obtain a regular ſucceſſion the year round; and the young plants of each ſowing to be tranſplanted into open compartments, to acquire full growth; and of which, the ſpring and autumn ſowings are for principal crops; the former to come in the ſame year, in ſummer and autumn, &c. and the latter, the year following for early and general ſummer crops; and the ſummer ſowed plants come in for interval ſucceſſional ſupplies the ſame year in young cabbages and open green coleworts, continuing for autumn and winter, or beginning of ſpring following, but will not ſtand for general ſpring uſe without running to ſeed, if ſowed before Auguſt.

The ſpring and ſummer raiſed plants ſowed from February, March, or April, till May or June, and tranſplanted when of four or five inches growth, cabbage the ſame year in June, July, Auguſt, September, &c. till Chriſtmas, in larger and ſmaller hearts, according to the above times of ſowing and planting, and will continue in ſupply great part of winter, or ſome ſorts, as red cabbage in particular, raiſed in February or March, to be fully cabbaged in autumn, will remain in perfection all winter and ſpring following; but at the above times of ſowing, February and March is the proper ſeaſon to ſow the main ſupplies to cabbage the ſame year in full growth; the others, in ſmaller crops, come in for ſucceſſional young cabbages and cabbage coleworts.

And the autumn ſowings performed principally the beginning of Auguſt are for the early and general crops next ſummer; the young plants continuing in an infant ſtate all winter, both ſome planted out finally in October or November, and the others pricked in nurſery-beds, or part remain in the ſeed-bed, and the whole,

whole from the nurſery and ſeed beds tranſplanted in the ſpring, for early and full crops of ſummer and autumn cabbage; and ſome to plant for winter and ſpring coleworts, as thoſe remaining till ſpring to uſe in their colewort ſtate will not run in that ſeaſon; and what are not then uſed for coleworts will grow to good cabbages.

The plants of the autumn ſowing planted out in October, November, &c. and in the ſpring, will generally acquire the largeſt ſize in their cabbaged heads ſooner in ſummer and autumn than the ſpring raiſed plants.

Cabbages will ſucceed in their tranſplanted growth in any common ſoil of a kitchen garden or good field land, and ſhould generally have an open ſituation, where not overſhaded with trees; and the richer the ground is, the better they will proſper in a free growth; and if dunged for the principal crops, will be of eſſential advantage in their culture to have them cabbage freely with large full heads, that will boil tender and good to eat.

As cabbages ſhould be raiſed in different crops, I ſhall give each under a ſeparate head, viz.

Early and general Crops.

For the early and general crops of cabbage, the ſeed ſhould be ſowed in Auguſt for the plants to ſtand the winter, to come in for uſe the following ſummer and autumn, &c.

Obſerve, for theſe crops, to have ſeed both of the early ſorts for forward crops in May and June, &c. as a few of the early dwarf and ſugar loaf; a larger ſupply of the early Yorkſhire, or Batterſea, or any other forward heading ſorts approved of, or as may be required, to furniſh a larger variety occaſionally; likewiſe ſome of the large oblong or long hollow and round kinds for late ſummer cabbages and autumn ſervice; and ſome large late kinds for ſucceſſion of largeſt autumnal and winter cabbages; alſo a principal crop of red cabbage for next autumn and winter.

The moſt proper time for ſowing theſe crops is the firſt or ſecond week in Auguſt, none later than the third week in that month, all to ſtand the winter in young plants to come in for early and principal ſupplies of headed cabbages next ſummer and autumn; remarking the above time of ſowing; for if ſowed ſooner than Auguſt the plants will fly up to ſeed in the ſpring in their young open growth, and if ſowed later, they will not obtain eligible ſtrength before winter: and the above is alſo the proper ſeaſon to ſow ſome early cabbage kinds for a good crop of ſpring coleworts to ſtand for general uſe all that ſeaſon without running.

Sow each ſort ſeparate in four feet wide beds of light mellow earth, broad caſt and rake them in regularly, giving occaſional waterings, if very dry hot weather.

When the plants are come up with leaves an inch or two broad in September, thin out a quantity from the ſeed-bed, and prick them into other beds in rows ſix inches by four aſunder, and water them; and in which beds they are to remain to acquire good ſtrength by October and November, when a parcel may be planted out finally both for early cabbages, and winter and ſpring coleworts, and the reſt to remain in the beds till February, March, or April, for planting out in that ſeaſon.

In October therefore, or November or December, &c. in mild open weather, plant out ſome of the early cabbages finally in rows a foot and a half to two or three feet aſunder, to have ſome to cut both in their young cabbaged growth, in a thinning order, for the earlieſt ſupply, and others at half and full growth; at the ſame time plant out a good ſupply for coleworts, in rows only a foot diſtance, by ſix or eight inches in the rows for ſpring ſervice, till thoſe deſigned for heading cabbages attain perfection.

Then in February or March, and early part of April, plant out all the others remaining in the nurſery and ſeed beds, in rows as above, except the large late cabbage and red cabbage, which ſhould be planted in rows a yard aſunder, by the ſame diſtance in the rows, or not leſs than two feet and a half, that they may

may have room wholly to remain to grow to their full ſize.

In planting the above crops of cabbages, that if neceſſary to make all poſſible advantage of the ground, ſome may be planted in September, October, or November, in rows where the crop of winter ſpinach is; alſo in the ſpring planting, in February, March, or April, the ground may be ſowed with a mixed crop of ſpring ſpinach and radiſhes together, which come off in May, &c. ſetting the cabbage plants in rows three feet diſtance, by one, two, or three feet in the rows, for ſome to cut out young, the others to remain for full growth.

As ſometimes the early tranſplanted cabbages, which were ſet out in autumn or winter, in October, November, December, &c. are many of them either killed or greatly damaged by rigorous weather in winter, or eat by ſlugs, the deficiency ſhould be made good accordingly, by ſtrong plants from the ſeed or nurſery-beds.

But if in winter, by ſevere froſts, &c. the cabbage plants in general are many of them killed, or the whole materially damaged, it is proper to ſow ſome ſeed of the principal varieties early in the ſpring, about January or February, either a few in a moderate hot-bed, to bring them forwarder, or in a warm ſouth border, or under a frame and glaſſes, to raiſe a ſupply of plants to a proper ſize as ſoon as poſſible, for planting out to make good the deficiencies.

Or if in the different plantations any fly up to ſeed in the ſpring, directly pull them up, and ſupply their places with ſtrong plants from the nurſery or ſeed-beds.

As to future culture of the above ſeveral crops of cabbages after final tranſplanting, it is proper in their advancing growth in ſpring and ſummer to hoe between the rows, to looſen the earth about the plants, and to cut up all weeds, drawing ſome earth round the bottom of the ſtems of the cabbages, repeating it once or twice in their advanced ſtate, to ſtrengthen and forward their growth; and in the early cabbages, when advanced of ſome tolerable ſize, beginning to heart for cabbaging about April, May, or June, ſome may have the leaves tied up to forward them, and promote the hearts grow-

ing white and tender; performing this either with ſtrings of freſh baſs, or ſmall oſier twigs, tying the leaves of each a little above the middle, not too ſtrait.

Thus the early cabbages will be fit to cut in ſmall heads the latter end of April, the early dwarf kinds, the others in May, June, July, &c. and the large late cabbages and red cabbages will head in full ſize in Auguſt, September, and October: the earlieſt ſmall heading cabbage in cloſe rows may be thinned by degrees in their young cabbage growth for uſe, the remainder will have room to grow to a larger ſize.

In gathering ſummer and autumn cabbages, the heads not being cut off too low, and leaving the ſtalks, they will produce ſecondary crops of excellent green ſprouts, and which, in the forward ſummer kinds, will cabbage with little heads; obſerving, cabbages for boiling are always in beſt perfection while the heads remain ſomewhat hollow, or before they grow very cloſe and hard.

And as to the crops of cabbage coleworts, of the Auguſt ſowing, theſe may be gathered for uſe in winter and ſpring, when the leaves are three or four to five or ſix inches broad, for open greens, or with ſmall hearts.

For ſucceſſional Summer and late Cabbages.

To continue ſucceſſional crops of young ſummer cabbages, and late crops for autumn and winter, ſow in February or March ſome beſt large ſugar-loaf, Yorkſhire, or Batterſea kinds, or any other of the ſmaller forward ſorts, for ſummer and early part of autumn; and ſome of the large kinds, as the oblong hollow, long hollow, common round white, drum cabbage, and red cabbage, &c. for late autumn and general winter crops.

All which ſorts ſow in beds of freſh digged earth, each ſort ſeparate; and when the plants are three inches high, prick them in nurſery-beds, as for the early crops to grow ſtrong a month or ſix weeks, then planted out finally, eighteen inches to two or three feet diſtance, in the different ſorts as before directed; the large

large ſorts and red cabbage allow a full yard diſtance; keep them clear from weeds by occaſional hoeing, and as the plants advance in growth hoe earth about the bottom of their ſtems.

Thus theſe crops of the above ſowing will cabbage, the forward ſorts in June, July, and Auguſt, to ſucceed the early and firſt general crops; the others will be cabbaged in September; but the largeſt late kinds in fulleſt perfection by October, and continue in winter, and the red cabbage all winter and ſpring.

But obſerve, of the ſpring ſowings, that when, by ſevere winters, the cabbage plants of the autumn ſowings are many of them cut off, or conſiderably damaged, it is proper to ſow ſome ſeed of the principal white and red cabbage early in the ſpring, about the end of January or beginning or middle of February, either in a moderate hot-bed, or under a frame and glaſſes, or in a warm border; and when of two or three inches growth, let ſome be pricked in a ſlender hot-bed, or ſome warm compartment, to forward them for final tranſplanting, as ſoon as poſſible, the ſame ſpring, in the order as above, to ſupply the deficiencies.

For a continued ſucceſſion of young cabbages and cabbage coleworts all ſummer, autumn, and part of winter, till Chriſtmas, ſome more ſeed of the beſt forward heading kinds, and large ſugar-loaf, may be ſowed in moderate portions in April and May, or alſo in June and July, for late crops of young cabbage, and a full crop of autumn and winter coleworts; and of each prick and plant out neceſſary ſupplies in May, June, July, and Auguſt, in rows from fifteen or eighteen inches to two feet or two and a half diſtance; the coleworts only a foot aſunder; the cabbages planted in cloſeſt rows may be thinned for uſe in their young cabbaged growth; leaving a ſufficiency for a full crop for larger cabbaging.

Of red cabbage, it is proper only to ſow two crops; an autumn ſowing the beginning of Auguſt, for a principal crop, to come in for next autumn and winter in largeſt full cabbaged heads, and a ſpring ſowing in February

or March, not later than April, for the enſuing winter and ſpring ſupply: obſerving of this ſort, to procure ſeed of the true Dutch kind, the leaves being thick, ſucculent, and of a deep or black red colour, not white veined, which are a degeneracy from the true ſort; and for planting them out, allow them good ground, and planted, the autumnal ſowing, ſome in October or November, the reſt in the ſpring; and the ſpring raiſed crop plant out in May and June; all planted a yard diſtance each way, that they may have good room to grow to full ſize with large firm heads in Auguſt, September, and October; but the autumnal raiſed plants will come in ſooneſt and with largeſt heads.

For field culture of cabbages to feed cattle, ſome of the large late kinds are the proper ſorts, ſuch as the large Scotch, American, drum, and large round winter cabbage; to be ſowed generally in the ſpring, about February, March, or beginning of April, to plant out in ſummer a yard diſtance, to attain full growth for next winter's feeding; or if ſome are ſowed in autumn (beginning of Auguſt), to plant out in the ſpring, they will attain a larger ſize before winter.

Saving Cabbage Seed.

To ſave cabbage ſeed, ſelect ſome of the fineſt full-ſized cabbages of the different ſorts required in October, November, December, or early in the ſpring; take them up with full roots, detach the large outer leaves, then chuſing an open ſituation of dry lying ground, trench them down to their heads in rows two or three feet aſunder, by two feet in the rows; each ſort planted ſeparate, and at ſome diſtance from one another; the red cabbage in particular have at ſome conſiderable diſtance from the others, to prevent as much as poſſible a commixture of the farina of the flowers, which would cauſe a great degeneracy of the reſpective ſorts; they will ſhoot up flower and ſeed-ſtalks in the ſpring, flower in May and June, and ripen ſeed in July or Auguſt, at which time of the ſeed's ripening, be careful to watch the birds for a week or a fortnight; and when fully ripe, cut up the ſeed ſtalks placed in the ſun, to harden the ſeed, and

dry

dry the ſeed pods brittle, to diſcharge the ſeed freely, then beat or threſh out the ſeed, clean it from the huſks, &c. dry it in the ſun a day or two, and then bag it up and houſed.

ONION.

Of the Family of Allium or Garlick (Allium Cepa), Cepa, *or common Onion.*

THE ONION, in its ſeveral varieties, are bulbous rooted plants, except one ſort (Welch onion), which never bulbs; all the others grow with large tunicated bulbous roots, the principal valuable part for various uſeful occaſions the year round; alſo in their young green unbulbed ſtate, in ſpring, ſummer, &c. are generally biennial, or two years plants, raiſed from ſeed annually ſowed in the ſpring, in one main crop for bulbing the ſame year, in July and Auguſt, and ſome to draw young; and a ſmaller crop ſowed in autumn to ſtand the winter, and for next ſpring and early ſummer ſervice; all to remain where ſowed, and the plants of the main crop thinned three, four, or five inches diſtance, which attaining full growth in large bulbs in Auguſt, and being then taken up, dried, and houſed, keep good till the following ſpring, then ſhoot for ſeed, which, in thoſe as have been planted in the ground again, ripen in autumn, and then wholly decay; though the Welſh onion in particular will continue perennial by the root, proper, however, only for ſtools to produce ſeed.

The varieties of onions are,

Common, or Straſburgh onion [moderate ſize bulbs].
Deptford onion [larger].
Large Reading onion.
Large white Spaniſh onion [root depreſſed orbicular].
Red Spaniſh onion [root as above].
Large Portugal onion [very large].
Large ſilver ſkinned onion.
Small ſilver ſkinned onion [excellent for pickling].

Blood-red onion [very hot].

Welſh onion, ciboule, or ſcallion [not bulbing].

Of theſe varieties, the Straſburgh, Deptford, and Reading onion being nearly the ſame, only the two latter are improved larger bulbs, all very eligible for the main crops of good keeping onions; the white Spaniſh and Portugal onion are ſuperior large bulbs, particularly the latter, but are both excellent for principal crops of largeſt onions; which from Spaniſh or Portugal ſeed will grow ſingularly fine and large, but are apt to degenerate in ſeed ſaved in England after the firſt year; the ſilver-ſkinned and blood-red onion may be raiſed in ſmaller ſupplies, and the former is peculiarly good for pickling; and the Welſh onion, or ſcallion, not bulbing, and being of a ſtrong hot taſte, is valuable principally for its exceeding hardy nature, to ſow in autumn to ſtand the rigours of winter for young ſpring onions, as certain ſubſtitutes, if thoſe of the bulbous kinds ſowed at the ſame ſeaſon (autumn) are killed by the froſt.

Onions being moſt valuably uſeful and profitable crops, both in their young and growing bulbing ſtate, and when fully bulbed and dried to keep for winter and next ſpring and ſummer, they ſhould be raiſed, the bulbous kinds in plentiful ſupplies annually in rich mellow ground, the main crops always to be ſowed in the ſpring for young and full bulbed onions, the ſame year in ſummer, &c. by ſowing towards the end of February, or any time in March, or not later than the beginning of April, to have fine bulbs; but March is generally a ſucceſsful time for ſowing the principal crop; or to have ſmall onions for pickling, ſome ſilver-ſkins, or others, may be ſowed thick in poor ground in April, and for a ſucceſſion of ſummer and autumn young onions, where required, ſmaller portions may be ſowed in May, June, and July; but ſhould ſow a larger crop in Auguſt and beginning of September, both of the Welſh onion, for its ſuperior hardineſs to ſtand the winter, and of the bulbous kinds; and in both of which ſowings in Auguſt and September ſome will furniſh young green onions in autumn, October, November,

ber, December, and in the ſpring from February or March till May, alſo of the bulbing onions of the ſame ſowing, ſome permitted to come in for early bulbers in June and July, though thoſe of the autumn ſowing are apt to pipe or run before, or ſoon after the bulbs acquire ſome tolerable ſize, which, however, will be ſucceeded in due time by bulbous kinds of the ſpring ſowed crop for continuance.

The crops of onions, particularly the main crop of bulbers, ſhould be allotted compartments of the richeſt moderately light mellow ground, and if manured with plenty of good rotten dung, digged in a ſpade deep, will be of material advantage; or occaſionally, the ground being firſt digged and levelled even, then ſome thorough rotted dung ſpread over, and pointed in with the ſpade four or five inches deep, will be productive of fine crops.

As onions are always raiſed from ſeed every year, in one main crop ſowed in the ſpring, and a ſecondary ſmaller crop in autumn, obſerve the following directions for each:—

Main Crop both for young Onions and principal Bulbers.

The main crop of onions, both for ſome to draw young, and the principal ſupply for bulbing, may be ſowed part the latter end of February, if favourable mild dry weather, and the reſt the beginning or middle of March, or may be wholly ſowed then, or any time in that month, for a good ſucceſsful crop, but not later than the beginning or firſt fortnight in April, as before intimated; which, however, will probably be inferior in their bulbous growth to thoſe ſowed a month ſooner; but, if omitted before, better ſow late, even any time in April, than omit ſowing entirely ſo uſeful a crop; or for ſmall bulbs to pickle, may alſo ſow in the middle of April; and if ſmall young green onions are required in ſucceſſion during the ſummer for ſallads, ſome may be ſowed any time in April, May, and June; obſerving, however, the times above-mentioned for ſowing the main crop for bulbing, &c.

For the main crop a larger portion may be ſowed thinly, and the plants thinned at once to ſtand wholly for the principal large bulbers, and a ſmaller ſupply ſowed thicker, to be thinned by degrees for young onions, leaving a full crop at laſt alſo for bulbing.

Be careful for each crop to have freſh ſeed of only a year old, if poſſible, for this is of much importance, and ſhould be very materially obſerved, that you may not be diſappointed in your crop when too late to ſow again the ſame ſeaſon, which mortifying circumſtance is too often experienced.

Having prepared a compartment of rich lightiſh ground, manured and digged as above intimated, the ground may either be divided into four or five feet wide beds, with ſpade wide alleys between, ſowing the ſeed on the ſurface, tread it down evenly, and rake it in, then ſpread a little looſe fine earth from the alleys over the beds, to cover the ſeed more effectually, and ſmooth it lightly with the rake, or back of the ſpade; or, in great crops, the ground may remain in a continued plate; ſow the ſeed on the general ſurface, and raked or harrowed in regularly.

In May and June, when the plants are up three or four inches high, and weeds advancing, they ſhould be thinned, and cleared from weeds, by hoe or hand; but hoeing is the moſt expeditious for large crops; having a ſmall two-inch hoe, or, in want of an hoe, have an old ſquare-ended knife, bent an inch and half, or two inches, at the top; and, with either of which, in dry days, hoe and thin the onions deſigned for the principal bulbers, to about four or five inches diſtance, cutting up all weeds, and nowhere leave two plants together: thoſe deſigned for thinning by degrees, for uſe, may be thinned now by hand, but moderately, only about two inches, or ſome not at all, where a conſiderable thinning is intended or required in young green ciboules, or ſmall bulbs, to draw and thin by hand, in June and July; obſerving, in both caſes, to leave a ſufficiency at laſt, four, five, or ſix inches aſunder, for full bulbing.

Obſerving

Obſerving as above, and during their advancing growth, to keep the whole very clean from weeds till Auguſt, when they will be fully bulbed; but obſerve, if, in the beginning of Auguſt, the ſtalks and tops of the onions are ſtill of a ſtrong, rank, upright growth, it is proper to lay them down with a birch broom, to make the ſtalks ſhrink, and to encourage the bulbs in acquiring a more complete firm ſtate for keeping.

Towards the middle of Auguſt, the onions in general will be fully bulbed, and have completed their principal growth, diſcoverable by the leaves withering, and necks or ſtalks ſhrinking or falling; then, in dry weather, pull the whole clean up, and hoeing, raking, and clearing from weeds, part of the ſame or any vacant ground, ſpread them thinly to dry and harden, turning them every two or three days, for a week or fortnight; then clear them from earth, looſe outer ſkins, and rough part of the tops, and carry them into a dry cloſe room, loft, or other dry apartment, diſtant from the effects of moiſt vapours, and fire heat, &c. which would make them ſhoot, ſpreading them moderately thin on the floor, where frequently turn them over, the firſt two or three weeks, till well hardened, picking out any tending to decay, or of a greeniſh ſoft ſtate; and when thoroughly dry and hardened, may be laid thicker together if required, and the whole covered cloſe with clean, dry ſtraw, a foot thick; examining them occaſionally, to draw out caſual decaying bulbs, and ſuch as begin to grow: they will thus keep ſound till next April or May, or longer.

During the winter and ſpring, any of the onions that grow in the houſe may be planted in the garden in rows ſix inches aſunder; they will ſhoot up ſtalky, and ſerve to draw for ſcallions in ſpring, in want of young green onions.

Where a ſucceſſion of young onions are in requeſt during the ſummer and autumn, ſome may be ſowed in four feet wide beds, in May or June and July, they will come in for drawing in their young green growth, from June or July till September or October.

Winter Onions, both to draw young, and ſome for early bulbing next Summer.

To have young green onions in autumn, winter, and ſpring, and for early bulbing in ſummer, a moderate crop may be ſowed in July for drawing young the ſame autumn, &c. but the principal winter crop ſhould not be ſowed till Auguſt and beginning of September, both of the common bulbing ſort and the Welch onion; ſome to draw young the ſame year, in October, November, December; but principally to ſtand the winter, for ſpring ſupply, from January or February till May; and ſome of the common onions to ſtand for early bulbing in June and July, till the ſpring-ſowed bulbous kind arrive to a proper growth.

The common onion for this crop is mildeſt to eat, but more tender and liable to be cut off by the rigours of winter than the Welch onion.

The Welch onion, being of the ſcallion kind, never bulbs, is of a ſtronger hot flavour than the other, but very hardy to ſtand almoſt the ſevereſt winter; and, though the leaves often die down to the ground in that ſeaſon, they ſhoot up ſtrong again towards ſpring; and therefore ſhould always ſow an equal or larger portion of that ſort, to afford a certain crop of young green ſpring onions.

Sow ſome of both the above ſorts of onions at the beginning, or towards the middle, of Auguſt, to furniſh ſome for drawing young the ſame autumn, and following winter and ſpring; and ſow more about the latter end of the ſame month, or firſt week in September, to ſtand longer in the ſpring and ſummer before they run for ſeed; preparing for theſe crops four feet wide beds, of light rich earth, with foot wide alleys between the beds: ſow each ſort ſeparate, very thick, eſpecially the Welch onion, tread down the ſeed, and rake it in regularly, then ſpread ſome looſe earth from the alleys evenly over the beds, and ſmooth it lightly with the rake or ſpade.

Then obſerving, when the plants come up, as numerous autumnal weeds will at this time appear, give

particular

particular attention in September and October, &c. to have the onions carefully hand-weeded in good time before the weeds ſpread, which would now ſoon overrun and deſtroy the crop; continuing this care as required, that the beds may be thoroughly well cleared from all weeds before winter: the plants of this crop are not to be thinned, as this will be performed in their more advanced ſtate, in drawing them young for uſe, ſome the ſame autumn and winter, and in more general ſupplies in the ſpring.

In the ſpring allot ſome of the common bulbing onions of this crop, to remain for early ſummer bulbers; thinning them for that purpoſe, by degrees, in March, April, May, to four or five inches diſtance; they will bulb in June and July, when they may be drawn, as wanted for uſe, in their ſmaller and larger growth.

But the Welch onions in ſpring may be pulled clean up, as wanted, or the largeſt thinned out by degrees; but the whole cleared off by May, as they never bulb, and will then all run for ſeed.

Tranſplanting Onions.

Onions, in their young unbulbed ſtate, will ſucceed by tranſplanting, as practiſed for leeks, when required on particular occaſions, both in the ſummer and winter crops, ſuch as when any ſummer crop, deſigned for bulbing, have failed either through bad ſeed, or other cauſes, or having omitted ſowing, a quantity of young onion plants may be procured in May, or the beginning of June, in ſhowery weather if poſſible; drawing them up with full roots, and planted in rich ground in rows ſix inches by four diſtance; they will take root freely, and bulb in tolerable perfection: the ſame may be practiſed in the winter crop of bulbous onions, occaſionally in March or April, planting them as above; they will grow to handſome bulbs, and not generally run to ſeed ſo ſoon as thoſe remaining where ſowed.

Saving Onion Seed.

To ſave onion ſeed, procure ſome of the handſomeſt dried bulbs of the main ſummer crop, either in autumn about

about the end of October, or in November, or in the ſpring about February, but not later than March; and which plant in rows, three together, eighteen inches diſtance, with an interval of two feet; generally drawing drills three or four inches deep, place the onions in the drills, one row in each, a foot aſunder, and earth them over.

They will come up and ſhoot to ſtalk in March, April, &c. Keep them clean from weeds in their advancing growth.

When they advance to ſtalk in ſummer, place ſtakes for ſupport along each row, five or ſix feet diſtance, and draw lines or long ſlender poles or rods, in a double range, from ſtake to ſtake, having the ſtalks of the onions between them; they will ripen ſeed in July, Auguſt, or September; when cut the heads in dry weather, ſpread them on cloths to dry, then beat and rub out the ſeed, cleaned and bagged up for next year's ſowing, which generally ſhould be but one year old.

But of the Welch onions for ſeed, as they never bulb, ſome of the ſtrongeſt plants of the autumn ſowing may be left in the ſame beds in the ſpring, and thinned, or ſome tranſplanted; they will ſhoot to ſtalks in May, and produce ſeed in autumn following: and as this ſort is perennial in the root, encreaſing by ſide offſets into large bunches, a quantity of the roots may be preſerved for ſtools, to furniſh ſupplies of ſeed, either in the beds where ſowed, or in autumn or ſpring, tranſplanted in four feet and a half wide beds, a foot or eighteen inches diſtance, they will produce more abundant ſupplies of ſeed than the young plants. In winter or ſpring ſpread ſome earth from the alleys over the beds, to cover the roots a proper depth.

BEANS,

In Botany, Vicia Faba *(Faba, or Common Bean)*.

THE BEANS, compriſing many varieties, are all annual plants, valuable for principal ſummer crops in their production of pods, from May or June to September, but generally in the greateſt perfection and abundance from about the middle of June to the middle of Auguſt; all raiſed from ſeed ſowed or planted in rows, two feet to a yard aſunder, in ſeveral crops, from October, November, or December, &c. till June or July, to have them from the moſt early to the lateſt ſeaſon; but, for main crops, January, February, March, and April, are the general ſeaſons for planting the largeſt ſupplies. They all arrive to full production the enſuing ſummer and autumn, and, after their production of green and ripe beans, wholly decay before winter.

The varieties of beans are,

Early Mazagan Bean, (very ſmall).
Early Liſbon Bean, (ſmall).
Early Small Spaniſh Bean.
Early Long podded Bean.
Common Long Pods.
Sword Long Pods.
Broad Spaniſh Bean.
White-bloſſom Bean, (fine eating).
Red-bloſſom Bean.
Mumford Bean.
Green Nonpareil Bean.
Windſor Bean, (largeſt broad pods, &c.)
Toker Bean, (large).
Sandwich Bean, (large).
Dwarf Cluſter Bean, (very ſmall).

Of theſe different varieties of beans, the firſt three are very ſmall; the Long Pods are of a middling ſize, as are moſt of the others, down to the Windſors; but the Windſor, Toker, and Sandwich, are fine large, broad

broad beans; the true Windſor is largeſt of all the ſorts, and moſt excellent for the great crops.

In theſe principal varieties of beans, they poſſeſs different properties and qualities for culture and uſe: the Mazagans, Liſbons, and Small Spaniſh, are valued chiefly for their early production; the former is the earlieſt, very ſmall, muſt be eaten while young, otherwiſe is harſh and unpalatable. The Small Spaniſh and Long Pods are the next in production; the latter very great bearers, in long narrow pods, the beans good, if eat while young, but diſagreeable if a little old, or black-eyed. The White-bloſſom is a fine ſweet eating bean; alſo the Broad Spaniſh; but the Windſor, Toker, and Sandwich, are the beſt for the main crops, as being fine large ſweet beans, ſuperior to moſt for eating. Any of the other intermediate varieties may alſo be cultivated in ſmaller crops, for variety: the Dwarf Cluſter Bean being of diminutive growth, only ſix or eight to ten or twelve inches high, is raiſed chiefly for curioſity.

But the principal ſorts for general culture are the Mazagan for early, the Long Pods, White-bloſſom, and Broad Spaniſh, for ſucceſſion, and firſt general crops; and the Windſor, Toker, or Sandwich, for large full crops.

Beans are raiſed by planting in different crops, from October, November, or December, till June or July, to have early, general, and late crops, i. e. from May to September or October: or, to obtain good crops in the principal ſeaſon of beans, may plant principally in December, January, or February, to April or May, to produce in the following June, July, and Auguſt; but in February and March and April, plant the largeſt ſupplies for full crops.

As beans are very profitable ſummer crops for three or four months in that ſeaſon and autumn, they ſhould be planted in conſiderable quantities in proportion to the extent of the kitchen ground, or that of a family, or in large ſupplies for the markets, in gardens and field land.

All

All the ſorts ſhould be planted in rows, principally by dibble planting, or occaſionally in drills, two feet to two and a half diſtance for the ſmaller and middling ſorts, by two to three or four inches diſtance in the rows, and two or three inches deep: the larger middling ſorts, a yard diſtance between the rows; and the largeſt ſorts, ſuch as the Windſor, Toker, and Sandwich beans, ſhould have the rows three feet, or three and a half, aſunder, four or five inches in the row, and three inches deep; and will admit of planting a row of cabbage or ſavoys between them in ſummer, or two or three rows of coleworts, &c. Or ſometimes beans may be planted in double rows, that is, two rows together, a foot aſunder, and allow a ſpace of four feet between the double rows: and, in the wide intervals, may, in the ſpring, ſow a crop of ſpinach and radiſhes, to draw off in May; or have a thin crop of turneps, &c.

Early and Succeſſion Crops.

For the earlieſt crops of beans, ſome Mazagans, or Liſbon ſorts, may be planted the latter end of October, a few only, or rather a larger portion in November or December; each either in a ſouth border or ſome warm dry ſituation, to the full ſun, in rows two feet and a half aſunder; alſo ſome planted in a row cloſe to a ſouth wall, paling, or hedge, long ways; all planted either by dibble, or draw ſmall neat drills, an inch or two deep, placing the beans two or three inches aſunder, and covered in evenly with the earth. They will come up the ſame ſeaſon, in three or four weeks, or probably ſooner, if temperate fine weather. When the plants are one, two, or three inches high, hoe a little earth to their ſtems in a dry mild day; and, if ſevere froſt ſet in, ſmall quantities might be protected with a covering, either of light dry litter over the rows, or garden mats; but removed when the weather is moderate.

This crop, if the plants ſurvive the rigours of winter, will come into production for gathering in May or beginning of June.

In

In January, or beginning of February, in open weather, plant more of the ſame ſorts in a larger ſupply for ſucceſſion, and a full crop; or if none were planted before, plant the firſt crop as ſoon in January or February as the weather permits; or, likewiſe, if any were planted in October, November, &c. and cut off by the froſt, plant again as ſoon as the firſt open weather commences.

Or, for an early crop, ſome Mazagan Beans, in October or November, may be ſowed thick in a bed or border, within a ſmall compaſs, for tranſplanting in ſpring about January or February, to be defended till that time with a frame and glaſſes, or arched over and covered with garden mats, &c. from rigorous froſts; but have the full air in mild or moderate weather; and, in January or February aforeſaid, when they are an inch or two high, tranſplanted into a warm border, taking them up with full roots, and a little of the adhering earth about the fibres; pull away the remaining lobes of the bean attached to the bottom, and ſhorten the extreme fibre of the main root; then plant them in ſmall neat drills, the diſtance as above.

Likewiſe, in November or December, may plant ſome Long Pods and Broad Spaniſh, to ſucceed the Mazagans; a larger quantity in January and February: each crop of theſe planted in rows two feet and a half, or a yard aſunder; the beans three or four inches diſtance in the rows, and two or three inches deep.

If after a ſevere winter the early crops are killed, plant again as ſoon as open weather; or, in this caſe, ſome may alſo be ſowed thick, in a moderate hot-bed, to raiſe the beans more expeditiouſly an inch or two high, inured by degrees to the full air; then, tranſplanted into the open ground, they will come a fortnight earlier than the others. Beſides, tranſplanted beans commonly bloſſom and fruit ſooner than thoſe not removed.

According as the above crops advance in growth, keep them clean from weeds by hoeing, and draw earth to the ſtems; and when well advanced in bloſſom, top the ſtalks to encourage their podding ſooner, more abundant, and well formed: or, if very dry weather when they

they are in bloſſom and podding, occaſional waterings will prove very beneficial.

Main and Late Crops.

In November, December, or January, in open weather, begin to plant ſome Long Pods and Broad Spaniſh beans, in a warm dry compartment, in rows two feet and a half or a yard aſunder.

But in January and February plant larger crops of the above ſorts; and if required in ſucceſſion, continue planting ſome of theſe, and the White-bloſſom, or other middling beans, in March, April, and May; generally about once in three weeks, from the beginning of February to the end of March or middle of April; then once a fortnight till the end of June, and they will ſucceed one another regularly in bearing, to gather young in good perfection for eating, in June, July, Auguſt, &c.

Then for the great crops, plant principally the Windſor, Toker, or Sandwich, or ſome of each; planting a few in December, a larger portion in January, and plant full crops in February, March, and April; and continue planting ſome every fortnight or three weeks till May for the principal ſupplies, to produce in June, July, and Auguſt; generally planting theſe large kinds in rows a yard or three feet and a half diſtance, four or five inches aſunder in the rows, and three inches deep; and where required to have a long ſucceſſion of theſe principal ſorts, continue the planting in ſmaller quantities, once a fortnight in May, and until the middle or end of June, or occaſionally a few in July for the lateſt crop; they will ſucceed the main ſummer crops in regular productions of moderate ſupplies of young beans in autumn, all Auguſt and September; though the late plantings in June and July, particularly of theſe large ſorts, if a dry ſeaſon, will moſt probably produce but ſparingly: on the other hand, if ſhowery weather happens, eſpecially when the plants are in bloſſom and podding, they will bear in tolerable plenty.

For principal late ſummer and autumn crops of young beans, for more certain production in tolerable abundance,

abundance, ſome of the middling and ſmall ſorts are moſt eligible to plant in larger ſupplies for that purpoſe; ſuch as the White-bloſſoms, Long Pods, Small and Broad Spaniſh beans, or others of that ſize, planted once a fortnight in May, June, and to the end of July, will produce a regular ſucceſſion of young beans from July till the middle or end of September: likewiſe a few White-bloſſom, Long Pods, and Mazagans, planted the middle or end of July and beginning of Auguſt, will have a chance of producing moderately plentiful crops in September, and towards Michaelmas and in October.

In the late plantings of beans in May, June, July, &c. if very dry hot weather, it is of utility previouſly to ſoak them ſeveral hours in ſoft water till they ſwell and plump a little, in preparation for ſprouting, without being retarded therein by the drought; then planted: and if the ground is alſo occaſionally watered after planting, which may be practicable for ſmall quantities, it will be of further advantage in promoting their germinating freely, and forward their coming up ſooner, and more regularly together, in a free growth.

For planting beans by dibble, the dibble ſhould generally be thick and blunt, or rounded at the lower end, that in making the holes they may be of proper width, quite down, to admit the beans full to the bottom, without any vacancy or hollow underneath, as happens when planted with a narrow-pointed dibble, by the bean lodging in the narrow part of the holes.

But beans may alſo be planted in drills drawn with the corner of an hoe, two or three inches deep, placing them in a row along the bottom of each drill, and turn in the earth over them with the feet, or with a hoe or rake, the above depth; and which method may be more particularly eligible in planting forward crops of the ſmall early and middle-ſize beans; and likewiſe in late ſummer-planting, in very dry hot weather, the drill-planting is convenient to admit of watering the drills previous to planting.

In the advancing growth of the ſeveral crops of both early, general, and late crops of beans, give occaſional hoeings

hoeings to kill weeds; and, at the ſame time, hoe ſome earth to the bottom of the ſtems, to ſtrengthen and forward the plants; and when, in their full growth, they are well advanced in bloſſom, it is of utility to top the ſtalks a few inches down, to confine the future nouriſhment wholly below, to encourage the pods to ſet more freely and plentiful, as well as fill ſooner and more effectual.

Between wide rows of beans, a yard diſtance, if neceſſary to gain ground and time in other crops, may be ſown, in the ſpring, a moderate crop of ſpinach, or a few radiſhes, to draw off in May and beginning of June; or alſo, in ſummer, may plant a row of cabbage or ſavoys, or two or three rows of coleworts.

Or beans may alſo be planted between wide rows of other crops that ſtand diſtant, or in alleys between beds of plants that are not of long continuance or large growth; or in any vacant ſpace, where neceſſary to gain ground.

Beans of the different crops, arrived to full production, the pods ſhould be gathered while moderately young, generally while the eyes of the beans remain green, as they will then be ſweet and tender; but when old to become black-eyed, they eat coarſe, rank, and diſagreeable.

To ſave beans for ſeed, either for large ſupplies, plant a quantity in the ſpring, January, February, or March; or for private uſe, leave ſome rows wholly ungathered, to have ſeed in beſt perfection: though this is often omitted by allotting principally the gleanings of the crops that remain ungathered for uſe; in all of which they will ripen in July and Auguſt; then, when fully ripe, the pods dry and brown, pull them up, placed in the ſun to dry and harden, and then threſhed out, each ſort ſeparate, cleared from the huſks by ſifting through ſieves, &c. and ſort the fineſt beans for future planting; they are generally in beſt perfection for growing freely when not exceeding the firſt year after they are ſaved.

CARROT,

CARROT,

In the Botanic Syſtem, Daucus Carota, *(Carota), or Common Carrot.*

THE CARROT is a biennial plant, moſt valuable to cultivate for a principal crop for its large long root, obtained for uſe almoſt the year round, but in greateſt perfection of full growth in autumn, continuing good all winter till the following ſpring; raiſed from ſeed in one or two main crops in the ſpring, about February or March, and April; and one or two ſucceſſional ſmaller crops ſowed in ſummer and autumn; the plants to remain where ſowed, and thinned four or five to ſix or eight inches diſtance; attain full growth the ſame year the ſpring and ſummer ſowings; the others next ſpring; and the main crops, and thoſe ſowed in ſummer, remain uſeful till next April or May, then ſhoot for ſeed, ripening in autumn, and then wholly decay.

The varieties of carrots are,

Orange, or Common Carrot, with largeſt long roots, beſt for the main crops.

Early Horn Carrot, with a ſhorter root, to ſow in a moderate ſupply for an early crop.

Yellow carrot, very good to eat, but not eſteemed for any general crop.

White carrot, ſeldom cultivated.

Of theſe varieties the firſt is ſuperior for its largeſt long root, and fine orange colour, and greatly preferable to cultivate for the general crops both in the ſpring and ſummer ſowings; and the Horn Carrot to ſow principally in a ſmaller ſupply for the earlieſt drawing in its young growth in May and June: but as to the Yellow and White Carrot, they are principally accidental varieties, that do not merit attention.

Carrots, being very uſeful and profitable family roots, ſhould be raiſed in conſiderable ſupplies in gardens and fields as principal kitchen plants moſt part of the year, particularly

particularly the orange carrot before obſerved; always to ſow for the main and general crops in the middle or latter end of February, or any time in March, or ſome may alſo be ſowed in April, or even May, either if omitted ſowing before, or to have a ſucceſſion of quite young carrots continued in ſummer; alſo for a further ſucceſſion of young autumn carrots, may ſow a moderate crop in July; and if ſome are ſowed in Auguſt, they will continue in a ſmall young ſtate all winter till ſpring, then encreaſe in growth for drawing in March and April, &c. See the main or general crops hereafter more fully explained.

But if required to have young ſpring carrots to draw as early as poſſible, April and May, ſome of the early horn carrot may either be ſowed in a hot-bed, or in a frame or warm border in January; but the hot-bed crops will be earlieſt by almoſt a month.

If to ſow in a hot-bed, make one in January or February of hot horſe ſtable dung for one, two, or more three-light frames, or to be arched with hoops, &c. and protected above with mats; earth it ſix or eight inches thick with light dry mold, ſow the ſeed, and ſift earth over it a quarter or half an inch deep, and when the plants come up give them air every mild day; thin them to three inches diſtance; give occaſional waterings when the earth is dry, and ſupport the heat of the hot-bed when decreaſed by a lining of hot dung to the ſides; the carrots will be fit to draw in April, when from a quarter to half an inch thick, and afterwards of a larger ſize.

Or in want of hot-beds, or if any are ſowed therein, you may alſo ſow in a warm ſouth border in January or beginning of February, in open weather, mixed with a ſmall portion of lettuce and radiſh ſeed, to have a greater chance of ſucceſs, or if they all ſucceed, the lettuce and radiſh will come off early, particularly the radiſh, to give room for the carrots; obſerving, as ſoon as ſowed, to cover the ground with dry ſtraw, two or three inches thick; it will forward the growth of the ſeed, and the plants come up ſooner; which, when up, continue

tinue to cover with the ſtraw every night and froſts till March, and taken off every morning in open weather; the carrots will be ready to draw in May.

A larger crop for early drawing, in May and June, may be ſowed in February in open weather, in a warm quarter of light ground, in four or five feet wide beds, to take their chance without any covering.

But for the main crops of carrots, may ſow about the middle or latter end of February, if ſettled open weather and dry light ground, otherwiſe ſow in March; obſerving for theſe crops to allot them open compartments of the lighteſt deep ground, if a light ſandy loam the better, not dunged the ſame year, which might impede the ſtraight growth of the carrots, and occaſion them to canker; dig or trench the ground one full ſpade at leaſt, or two ſpades deep if the good ſoil admits; and which may either be divided into four or five feet wide beds for moderate crops; or for large, may be in one continued plat; then for ſowing, obſerve, as this ſeed is very light and adheres together, it is proper to mix a little dry ſand or fine earth therewith, rubbing it between the hands, to ſeparate and make it heavier for the more regular ſowing; which ſow broad-caſt moderately thin, and rake it in evenly; or in large crops in market grounds or fields, may be harrowed in, and then, if a dry ſoil, roll the ground with a wooden roller, to cloſe the ſurface more effectually over the ſeed.

In May and June, when the carrots are come up two or three inches high, they ſhould be thinned and cleared from weeds, which generally perform by ſmall hoeing for large crops; or ſmall crops occaſionally by hand, but hoeing is the moſt expeditious, and looſens the ſurface about the plants, to improve their growth; having a two or three inch hoe, and with which in dry days thin the plants four or five inches diſtance, of thoſe that are to be part drawn in a thinning order for uſe in their young growth; but thoſe deſigned to attain full ſize, either of the above or the main ſupply allotted for that purpoſe, ſhould be thinned not leſs than ſix or eight inches aſunder; being careful in both caſes to cut up

all

all weeds, repeating the hoeing or weeding occaſionally according as weeds advance, till the leaves of the carrots cover the ground, when no further culture will be required.

The above crops will afford young carrots to begin drawing in June, when about half an inch thick, or leſs or more, as may be required, beginning firſt with thoſe that were thinned only to four or five inches diſtance, drawing them in a thinning order, continuing it in their advanced growth, as required for uſe, till July, when leaving the remaining crop at full diſtance, ſix or eight inches aſunder, or more; afterwards they may either be digged clean up, or only the beſt ſtill thinned out, where they will admit of drawing without the top breaking off.

Thoſe, however, which are deſigned for the main continuing crops for the whole to grow to full ſize, and were thinned at once accordingly to ſix or eight inches diſtance, ſhould not have any drawn in the above thinning order for uſe in ſummer, but generally all permitted to take their full growth till autumn, Auguſt and September, and a large portion till October for winter keeping.

Carrots generally continue their growth in the root till October, at which time, or beginning of November, all thoſe of the main crops ſhould be digged up, the tops cut off, and laid in ſand for the winter, as they will thus keep ſound, and free from canker, and be always ready in all weathers during that ſeaſon.

But beſides the main crops of carrots, as above, ſome may be ſowed in ſmaller crops in April or May, for ſucceſſional young carrots in ſummer, alſo a moderate crop the beginning or middle of July, to furniſh young autumn carrots, and part to remain for drawing in winter; likewiſe in Auguſt ſow a few to ſtand th winter for early young ſpring carrots, to draw in March and April, as was before obſerved, continuing till May, or till ſucceeded by the early ſpring-ſowed crop, for they will not remain long good, being apt to grow hard and ill taſted.

Saving Carrot Seed.

To ſave good carrot-ſeed, procure in February ſome of the fineſt large long roots of the main crop, and plant them in rows two feet diſtance, by trenching them down perpendicularly an inch or two over the crowns; they will take root, ſhoot up to ſtalks in ſpring and ſummer, and produce umbels of ſeed ripening about Auguſt; cutting off the umbels in dry weather, ſpread to dry, then beat and rub out the ſeed, clean and put it up in bags, &c.

This ſeed for ſowing ſhould generally be but one year old, otherwiſe you may be diſappointed of your crop.

BORECOLE.

Varieties of the Braſſica oleracea, *or Cabbage Family.*

THE BORECOLE, conſiſting of ſeveral varieties, are of the cabbage tribe, growing moſtly with tall ſtems, crowned with large open looſe heads of cut fimbriated curled leaves, not cabbaging; but are excellent hardy open coleworts to ſtand the winter in defiance of the ſevereſt weather; very deſirable open greens for a good winter and ſpring crop, valuable both in their large top heads, and conſiderable production of ſide ſprouts; are all biennial plants, raiſed from ſeed ſowed in ſpring and beginning of ſummer, in two or three principal crops, and all tranſplanted two feet and a half or a yard diſtance, attain perfection the ſame year in autumn and winter, remaining till ſpring; then ſhoots for ſeed, ripening it in Auguſt, and then wholly dies.

The varieties of borecole are,

Green curled borecole.
Red curled borecole.
Black-green borecole.
Finely fringed borecole.
Scotch borecole, or kale (larger more upright full heads.)

French

French borecole, or Anjou cabbage (very tall).
Milan borecole, or Milan cabbage (narrow jagged leaves).
Bruſſels ſprouts (ſomewhat perennial, producing numerous ſprouts).

Theſe are all of the open colewort tribe, moſtly of a ruſtic growth to appearance, but valuable for winter and ſpring greens, for their remarkable hardineſs to ſtand the ſevereſt winters, when others of the cabbage tribe are killed by rigorous froſts; and they all boil very green, tender, and excellently good to eat; in beſt perfection from October or November till February, the main heads; and when theſe are gathered, the tall ſtems remaining furniſh alſo a conſiderable crop of fine ſprouts in the ſpring; afterwards they ſhoot for ſeed, and become uſeleſs, ſo muſt be raiſed in ſucceſſional ſupply from ſeed annually.

Of the different varieties, the firſt two are the principal ſorts of common borecole for general culture; the third and fourth are alſo of the ſame kind, and equally good, and moſt curious in their finely fringed leaves: but the other ſorts may alſo be cultivated as kitchen greens, though the common borecoles are preferable for main crops; and which varieties, in particular, deſerve culture in two or three full crops to ſtand for winter and ſpring ſervice, both as a reſerve to reſiſt the rigour of winter, in caſe the crops of ſavoys, cabbages, and cabbage-coleworts are killed by the froſt, and alſo as being very fine boiling greens to uſe in variety with or without others of the cabbage tribe occaſionally.

They grow with an upright tall ſtem, from two to three or four feet high, crowned with a large expanded head of leaves, remaining open in the heart; and when the heads are gathered, or even while they remain in the ſpring, the ſtems afford a large production of ſprouts, equal in goodneſs to boil to thoſe of the fineſt cabbage coleworts.

To obtain a regular ſucceſſion of good crops of borecole for uſe all winter and ſpring, it is proper to raiſe two or three different crops, ſowing the firſt in March, the ſecond in April, each for principal ſupplies, and a ſmaller

portion in May, performing each in an open ſituation, ſowing the ſeed on the ſurface moderately thin, and raked in regularly; when the plants are come up two or three inches high, thin the ſeed-bed, and prick out a quantity in beds of good earth, ſix by four inches diſtance, and watered, and in a month, or five or ſix weeks, they will be ſtrong in fine order for final tranſplanting in May, June, July, Auguſt, &c. as alſo thoſe remaining in the ſeed-bed, having been thinned by pricking out a portion as above, will attain a more robuſt and eligible growth for tranſplantation.

For their final planting, allot an open ſituation in any common ground, and plant the main crops in May, June, and July, in ſhowery weather, if poſſible, in rows a yard aſunder by two feet and a half in each row; the latter crops planted in Auguſt and September, two feet and a half and two feet diſtance, giving each planting directly a good watering.

In their advancing growth, after final planting, keep them clear from weeds, by occaſional hoeings, and hoe ſome earth round the bottom of the ſtems, repeated once or twice, which will ſtrengthen and forward them to a large ſize, with tall ſtrong ſtems and full heads.

The firſt crops of the principal borecole kinds, planted out in May, June, July, will run up with tall ſtrong ſtems and large heads of full ſize by September and October; when, if required, ſome may be cut for uſe, and as wanted, during the winter ſeaſon till ſpring; and at which time, about February and March, the remaining ſtalks, both with and without the main top heads, will produce great plenty of fine tender ſprouts, that will boil very green, tender, and good to eat, equal, if not ſuperior, to the main heads.

The other ſucceeding crops planted out in ſummer and autumn, in July, Auguſt, or September, will alſo advance in proper growth in middling tall ſtems, and moderately large and ſmaller heads in regular ſucceſſion for winter and ſpring ſupply.

The Anjou borecole, Milan cabbage, and Bruſſels ſprouts, may alſo be ſowed in ſpring and ſummer, about March, April, till May or June, as directed for the common

common borecole, and planted out in the ſame manner for winter and ſpring open greens.

To ſave borecole ſeed, mark in autumn, winter, or ſpring, ſome of the largeſt full-headed plants with the moſt fimbriated curly leaves of the common borecole, the others according to their kind: and which either dig up with full roots, pull away the under-leaves, and plant them together in a free ſituation, by trenching them down to the bottom of the heads, in rows a yard aſunder, or leave a ſufficiency where originally planted, eſpecially if with robuſt ſtems; they will run to ſtalks in April and May, and produce plenty of ripe ſeed in July or Auguſt.

LOVE-APPLES, *or* TOMATOES.

By the Botaniſts, Solanum Lycoperſicum *(or Wolfs Peach, commonly called Love-Apple,* Pomum amoris).

LOVE-APPLES are of the family of nightſhade *(ſolanum)*, tender annual plants, of large rambling trailing growth, producing large red and yellow fruit deeply furrowed, which are the uſeful part of the plants, in ſummer and autumn, both when green and ripe, for ſoups, and to pickle, &c. raiſed from ſeed annually in the ſpring; one ſmall crop ſowed in a hot-bed for tranſplanting in the full ground in May or June, produce fruit the ſame year, July, Auguſt, September, and wholly die at the approach of winter.

The varieties are,

Common red fruited love-apple, or tomatoe.
Yellow fruited.
White fruited.
Cherry ſhaped.

But the red ſort is in moſt eſteem for kitchen uſe, a few of the others may alſo be raiſed for variety.

The fruit of theſe plants are uſed in ſome families to put in ſoups, and ſometimes when green to pickle, alſo when ripe for the ſame purpoſe, but are always in moſt value when fully ripe to uſe in ſoups, &c. in autumn, and to keep in the houſe for uſe part of the win-

ter; though as they are only uſed in ſmall quantities, a few plants will be ſufficient for a moderate family, or in larger ſupplies where intended for ſale; and that as they are all tender exotics, originally natives of hot countries, require to be raiſed in our gardens by the aſſiſtance of hot-beds in ſpring till May, then tranſplanted into the open ground againſt a ſouth wall, in order to have their long trailing branches trained thereto in the manner of wall trees, that they may more effectually ripen fruit in perfection in autumn before the approach of cold weather; or planted in ſouth borders, and the branches trained along in a ſpreading manner to ſtakes, to have the full ſun, otherwiſe the fruit ſeldom ripens wholly in full maturity, eſpecially if a cold or wet autumn.

The plants being of a ſtrong rambling trailing growth, require ſupport, otherwiſe will trail on the ground; ſhould generally be planted to have ſupport of walls, palings, or ſtakes.

They are raiſed from ſeed ſowed the latter end of March or beginning or middle of April, in any common hot-bed, under frames and glaſſes, either a ſmall hot-bed made for that purpoſe, or in a cucumber or any other hot-bed then in cultivation, the ſeed ſowed either in the earth of the hot-bed, a quarter to half an inch deep, or in pots placed therein, and when the plants are come up two or three inches high, if a few are pricked in the ſame, or a new made gentle hot-bed in April, five or ſix inches diſtance, and watered, they will acquire a ſtronger robuſt growth for final tranſplanting in May, giving them, while in the hot-bed, neceſſary waterings, and proper air every day, to ſtrengthen and harden the plants by degrees for planting out fully into the open ground.

In the middle or latter end of May, or when ſettled warm weather, in that month, or at lateſt beginning of June, plant out the whole into the full ground, ſome againſt a warm ſouth wall, if any room or vacant ſpaces between the wall-trees, or in ſome warm ſheltered ſituation in the full ſun, for training to ſtakes, or rails, or palings, &c. removing them, where convenient,

ent, with ſmall balls of earth about the roots, and planted ten feet diſtance, giving water at planting, and ſhaded from the ſun till they take good root; and if cold nights afterwards occur, allow them a little ſhelter either of hand-glaſſes, large garden pots whelmed over, or garden mats, for the firſt week, or more, till they advance in a new growth, then fully expoſed by degrees.

But where not convenient to give them the above aſſiſtance of walls or ſtakes, &c. it is, however, proper to plant them in a warm ſunny border, the diſtance as above, in order for the ſtems or branches to be extended along the clean ſurface.

Or ſome may be planted in large pots, one plant in each, in order to remove to any place occaſionally when in fruit, as may be required; or in autumn, if the fruit is not ripe, and if cold wet weather prevail, may be removed in their pots into a green-houſe, glaſs-caſe, or deep garden frame, under ſhelter of glaſſes, to have the fruit ripen in full maturity, or to preſerve them longer in perfection after the cold weather commences, in October, &c.

In their different places of final tranſplanting, let the plants be well ſupplied with water in dry weather in their advancing growth.

And when the plants begin to advance into branches, in their ſtrong rambling growth, train them along regular, and nailed to the wall againſt which they were adviſed to be planted, or to ranges of ſtakes, in a ſpreading order, in the manner of wall or eſpalier trees, in which they will extend many feet in a large expanſion, and produce looſe cluſters of ſmall yellow flowers, ſucceeded by large bunches of pendulous fruit, ripening about Auguſt or September, till October, by the above aſſiſtance of training to walls, ſtakes, to have all benefit of the full ſun; obſerving, however, in the middle or latter end of October, before froſt, or very cold or exceſſive wet weather prevails, it is proper to gather all the remaining fruit, ripe or green, detaching them with part of the ſtems or branches in cluſters as they naturally grow, and hang them up in a green-houſe or

glaſs-caſe towards the windows, or in any warm dry apartment, where the ſun comes, they will keep for uſe a few weeks longer, and any that are ſtill green will advance towards ripeneſs.

Where any are planted detached in borders, and not convenient to allow them ſupport of ſtakes, train the ſtems out regular and thinly in different directions upon the ſurface of the ground, keeping this clean from all weeds; and if a warm dry autumn, they will ſtand a chance of ripening ſome fruit in September, &c.

To ſave ſeed of love-apples, gather ſome of the earlieſt fully ripe fruit in September, lay them in a dry place, where the ſun comes, for a week or two, then clean out the ſeed from the pulp of the apples, waſhing it from the pulpy part, ſpread it to dry thoroughly a few days, and then put up to keep for ſowing next ſpring.

ALEXANDERS.

In the Botanic Syſtem, Smyrnium Oluſatrum.

ALEXANDERS are biennial plants, growing with upright ſtalky leaves, of many folioles or lobes by threes, like celery, and the ſtalks of which, when blanched, by earthing up, are the parts uſed, both in culinary purpoſes, ſoups, &c. and occaſionally in ſallads; for uſe principally in ſpring, ſummer, and autumn; being raiſed from ſeed ſowed annually in one or two ſmall crops in ſpring and autumn, in drills two feet diſtance, to remain, or broad-caſt for tranſplanting the ſame diſtance, each to be earthed up at full growth; the ſpring ſowing come in for uſe in ſummer and autumn, the autumn ſowing for ſpring ſupply; continue till the ſecond ſpring, then ſhoot for ſeed, ripening it in Auguſt, and ſoon after decay.

There is but one ſpecies, viz.

(Oluſatrum) or common alexanders.

This plant at preſent is not in much eſtimation or demand, and cultivated but in few gardens, and is ſeldom ſeen in the markets.

It

It is raiſed from ſeed ſowed annually in two moderate crops, ſowing ſome in March and April, &c. for the ſummer and autumn ſupply, and in Auguſt, to come in for next ſpring and early ſummer crops.

Sow the ſeed in an open ſituation in drills two feet aſunder, to remain, and the plants, when two or three inches high, thinned five or ſix inches apart; or ſome may be ſowed in the ſpring in a bed for tranſplanting the above diſtances, or occaſionally ſome of thoſe ſowed in drills may be thinned out, and planted in the ſame order; and in either method, the plants, when well advanced in growth, both of the ſummer and ſpring crops, ſhould have earth hoed up to the ſtalks on both ſides, repeating it once or twice, to blanch them white and tender for uſe.

By ſowing ſome in ſpring and autumn, and managed as above, they will furniſh a regular ſucceſſion for uſe from March or April till winter.

To ſave ſeed of alexanders for ſowing, leave ſome ſtout plants either of the autumn or ſpring ſowing, they will run to ſtalks, and produce umbels of ripe ſeed in autumn.

ANGELICA.

In Botany, Angelica Archangelica, *or greater Garden Angelica.*

ANGELICA is a large growing, biennial, or two years plant, of the aromatic kind, with large divided leaves and ſtrong upright ſtem; which latter, and the ſtalks of the leaves, while young and green, are the principal uſeful parts to candy occaſionally for ſweetmeats; and the ſeed umbels and whole plant for medicine; raiſed from ſeed a ſmall crop, or as required, annually in ſpring or autumn, for tranſplanting in ſummer two feet diſtance, and the ſecond ſpring ſhoots up to ſtalks, producing large ſeed umbels, ripe in autumn, then the plants die.

The principal ſpecies are,

(Archangelica) or greater garden angelica.
Dark purple Canada angelica.
Shining Canada angelica.

But of theſe varieties, the firſt is the ſort moſt eligible to cultivate for domeſtic occaſions; the green tender ſtalks of the leaves and ſeed ſtems in May, while young, are ſometimes uſed for candying, which is the principal family uſe of the plants, and for which it may be raiſed in ſmaller or larger ſupplies as required.

They are hardy plants, delight moſt in moiſt ſoils or by the ſides of water; but will alſo grow anywhere.

The plants are always raiſed from ſeed in the ſpring, about February, March, or April, or in Auguſt or September, ſowed either in drills a foot diſtance, or broad-caſt in any bed or border, and raked in; and when the plants are advanced from three or four to five or ſix inches high in ſummer, plant them out into four or five feet wide beds, two feet aſunder, to have room for their large growth; or, where convenient, may plant ſome along the ſides of watery ditches, or any ſimilar ſituations, to grow ſtronger; they will grow with large leaves the firſt year, and the ſecond ſhoot up with ſtrong ſtems for ſeed; but if required young and green for angelica ſweetmeats, by candying, ſhould be cut for that purpoſe in May.

To have a certain ſucceſſion, ſow a ſupply every year; though young plants will often riſe from the ſelf-ſowed ſeed.

To ſave angelica ſeed, permit ſome ſtems to run their full growth, they will ripen plenty in autumn.

BALM.

In the Botanic Syſtem, Meliſſa officinalis, *Officinal, or common Balm.*

BALM is a perennial plant of the aromatic tribe, of a ſalutiferous property, to uſe principally by way of medicine, for balm tea, &c. the leaves being the parts uſed for that purpoſe; obtained in their green growing ſtate for uſe in ſpring, ſummer, and autumn, and dried to keep for winter; raiſed by ſlipping the bottom offſets, or by parting the roots in ſpring or autumn, planted a foot diſtance, finally to remain where planted;

one

one ſmall crop, which will continue ſeveral years by the root, producing leaves and ſtalks annually.

One ſpecies for the kitchen garden, viz.

Officinal, or common balm.

This is a hardy plant that will grow anywhere, both in open and ſhady ſituations.

It may be planted in ſpring, about February, March, or April, or in autumn, in Auguſt, September, or October; either by full plants for immediate uſe, or by ſlips of, or by parting the roots of old plants, all planted fifteen inches or a foot aſunder; they will quickly grow, and thoſe planted in ſpring will furniſh a plentiful crop of ſhoots and leaves, &c. for uſe the ſame year, and to cut and dry for winter.

To propagate and raiſe a crop of balm, it being effected by off-ſets and parting the roots, perform it either in the ſpring, about February, March, or April, or in autumn, any time from Auguſt or September till November; when either detaching a quantity of ſide off-ſets from old plants, taking the roots and tops together, or taking up ſome whole plants, divide them into many ſeparate ſlips, with roots to each, and plant them in one or more four feet wide beds, or in a border, &c. by dibble, at twelve or fifteen inches diſtance, watered at planting, if dry warm weather, and afterwards occaſionally till they take good root; they will ſoon root freely, and grow quickly into large bunches in one ſummer; and thoſe of the ſpring planting will produce ſhoots and leaves plentifully for uſe the ſame year; or if not planted till autumn, they will grow to perfection the enſuing ſpring and ſummer.

Or to propagate balm, that as old plants in the ſpring, about March and April, ſending up many young ſhoots from the root, theſe, when from one to two or three inches high, may be ſlipped off with ſome ſmall root-part to each, and planted, they will grow freely, and form good plants the ſame ſeaſon.

Balm to gather for uſe may be cut or plucked off for preſent ſupply both in its young growth of one, two, or three inches in the leaves, or young ſhoots and leaves together, and in its more advanced ſtate till arrived to

full growth, of half a yard to two feet high; always taking principally the young leaves, or theſe and the young top ſhoots together, during its growth in ſpring and ſummer for immediate uſe; but for drying to keep till winter, &c. let the ſtalks be generally in an advanced growth, of one or two feet, though are always in beſt perfection for keeping when nearly at full growth, in July or beginning of Auguſt, when they begin to flower; and at which time it is proper to gather the principal ſupply for drying, cutting the ſtalks cloſe to the ground, and ſpread to dry gently out of the full ſun, then tied up in bunches, and hung up in any dry apartment, ſhed, or loft, where it will keep good all winter till next ſpring.

Or to have a production of young ſhoots and leaves all ſummer, cut down the ſtalks of a portion in May or June, &c. they will ſhoot up young from the bottom in proper ſucceſſion.

As to culture of balm, obſerve, as the ſame plants continue ſeveral years, all they require is to keep them clean from weeds; and generally every ſpring dreſs the beds, by hoeing between the plants, to looſen the earth, and clear off weeds and litter; and in autumn, about Auguſt, September, or October, cut down all remaining ſtalks cloſe, hoe off all weeds, to leave the beds clean for winter; then, or in ſpring, if the plants ſtand diſtant, lightly dig between them with a ſmall ſpade or garden trowel; otherwiſe, if they are grown cloſe, not to admit of digging, hoe between them, as above adviſed; and ſometimes in autumn, or early in the ſpring, ſpread ſome looſe earth thinly over the beds about the plants; all which will promote ſtrength and a production of large thick leaves.

Thus a crop of balm will abide ſeveral years by the roots, producing ſhoots and leaves annually in ſpring and ſummer; but as, when advanced in age, they will gradually dwindle into a weak ſtate, it is proper in due time to make a new plantation, by young off-ſets or ſlips, once in three, four, or five years, as it may ſeem neceſſary.

BASIL.

By the Botaniſts, Ocymum (Ocymum Baſilicum).

BASIL, conſiſting of two ſpecies, are tender annual plants, pot, ſallad, and medical herbs, of the aromatic tribe, and of a low buſhy growth, ſix to twelve or fifteen inches high, with oval leaves; the young tops and leaves together being the uſeful parts for ſoups, ſallads, &c. and the whole plant for medicinal purpoſes; obtained for uſe in ſpring, ſummer, and autumn, and raiſed annually from ſeed, one ſmall crop ſowed in March or April, in a hot-bed, both ſome to remain for gathering young, and for tranſplanting into the full ground in May, a foot to fifteen inches diſtance, where they will continue in growth till Autumn, then ripen, ſeed, and die ſoon after.

The ſpecies and varieties of baſil are,

Baſilicum, or common greater baſil.
- Broad leaved.
- Narrow leaved.
- Fringed leaved.
- Curled leaved.
- Purple leaved, &c.

Leaſt, or buſh baſil.
- Smooth leaved.
- Hoary leaved.
- Purple leaved.
- Variable leaved, &c.

All the above varieties often riſe from the ſame ſeed of each reſpective ſpecies, and poſſeſs nearly equal properties for uſe; though the baſilicum, or greater baſil, is eſteemed the beſt for culinary and medicinal purpoſes; but ſome of both ſpecies may be raiſed; the ſame culture is applicable to both ſorts.

They are raiſed from ſeed, and being tender plants, require to be raiſed in a hot-bed in ſpring, to plant out in May or June, as they will not ſucceed in the open air before that ſeaſon. One ſmall or moderate crop is ſufficient

ſufficient to furniſh a requiſite ſupply throughout the ſeaſon.

Sow the ſeed the middle or latter end of March, or beginning of April, in a moderate hot-bed, under glaſſes; or if required to have ſome plants early, to uſe young, ſome ſeed may be ſowed in February, or beginning of March; but for tranſplanting into the full ground, the middle of March to that of April is a proper ſeaſon to ſow; either ſowing the ſeed in ſmall drills, or on the ſurface and covered with fine earth a quarter of an inch thick; and when the plants come up, give them moderate air every mild day, by tilting the upper end of the glaſſes an inch or two, or more as the warm ſeaſon advances, and give occaſional gentle waterings; then when they are one or two inches high, if ſome are pricked in the ſame or another hot-bed three or four inches diſtance, they will acquire a ſtronger growth for tranſplanting.

About the middle or latter end of May, or beginning of June, when ſettled warm weather, tranſplant the whole into a compartment of rich ground, a foot to fifteen inches diſtance, watered at planting, and occaſionally till they take root and grow, and in their growth kept clean from weeds, is all the culture they require after being thus finally tranſplanted.

They will advance freely in growth to gather for family uſe in June, July, Auguſt, &c.; and for medicinal uſe, when full grown in Auguſt and September: but to have a ſupply of young baſil in ſpring and early part of ſummer, till the main crop planted as above in the open ground is of a proper growth for uſe, ſome may be ſowed and continued in a hot-bed for that purpoſe, and defended with glaſſes till April or May when the weather is warm enough to expoſe the plants fully, and of which the young tops may be gathered as wanted for preſent ſupply.

Or in want of a hot-bed, ſome may be ſowed in a warm ſouth border of light dry earth the middle or latter end of April and in May, both for ſome to tranſplant, and to gather young for preſent uſe, in May and June, &c.

To

To ſave baſil ſeed, permit ſome plants to run with their firſt flower ſpikes, they will ripen ſeed in Auguſt or September.

BEET.

In the Botanic ſyſtem, Beta, (Beta Vulgaris), *or* Common Beet.

THE BEET, conſiſting of ſeveral varieties, are biennial plants; one ſort (red beet) is valued for its large red root, both to boil and eat cold with vinegar, and to cut in ſlices both raw and boiled for ſallads, alſo to pickle, &c.; in perfection in autumn, winter, and ſpring. The other varieties are cultivated principally for their leaves, to boil, and for ſoups, ſtewing, &c. in ſummer, autumn, or moſt ſeaſons of the year, as may be required. All raiſed from ſeed ſowed annually in the ſpring, one principal crop; or the green and white ſorts, for their leaves, ſowed alſo occaſionally in ſummer and autumn; the plants all to remain where ſowed, and thinned eight or ten inches to a foot aſunder; attain perfection the ſame year, continue till the following ſpring, then ſhoot up ſtalks for ſeed, ripening it in auguſt, and then wholly periſh.

The varieties of beet are:

Red beet, for its large red root; compriſing the
- Common long-rooted red beet.
- Turnep-rooted red beet.
- Great-rooted German red beet, a new variety, very large long root.

Green beet, for its leaves.

White beet, for its leaves, more large and ſucculent.

White chard beet, for its leaves; moſt large, thick, and fleſhy.

Of theſe varieties, the red ſorts are always raiſed for their root only, being large, of a deep red colour, fleſhy, tender, and ſweet to eat, and which, the true ſorts, have alſo dark red leaves; but theſe are never uſed; the other varieties,

varieties, having ſmall white roots not uſeful for eating, are cultivated only for their leaves, being large, thick, and ſucculent, tender and good to boil, both in the manner of ſpinach, and in various other culinary occaſions: all the ſorts are very neceſſary crops where general ſupplies of kitchen plants are required, both in private family gardens and market grounds; but generally more conſiderably of the red beet, and which ſhould never be omitted in principal kitchen gardens.

They are all hardy plants, raiſed from ſeed annually, ſowed principally in the ſpring, February or March, for the main crop; alſo the green and white ſorts occaſionally in ſummer and autumn: will thrive in any common garden ſoil, and open ſituation; though the red beet in particular ſhould generally have a rich, lightiſh, deep ground. See the culture of each ſeparate.

1. *Red Beet.*

This plant for large families, and market, ſhould be raiſed in ſome conſiderable ſupply, for autumn, winter, and ſpring eating; to be ſowed in February or March one full crop, but not later than April; which, arriving to full perfection in its large red root in September and October, continues good till April or May following.

To cultivate this variety of beet, allot a compartment of rich mellow ground in an open ſituation, and this trenched or digged one or two ſpades deep: then in the middle or latter end of February, or in March, the ground being freſh digged, and either divided into four or five feet wide beds, or remain in a continued ſpace, ſow the ſeed either broad-caſt thinly on the rough ſurface and raked well into the ground, or as being large ſeed, may draw ſmall drills a foot aſunder and an inch deep, ſow the ſeed in the drills and earthed over; or may dot or dibble in the ſeed in rows the above diſtance, making holes with a thick blunt-ended dibble ten or twelve inches aſunder and one deep, dropping two or three ſeeds in each hole; but of which to leave only one good plant in each place; and, in all of which methods of ſowing, the plants to remain where ſowed and thinned.

In

In ſummer, about May and June, when the beets are one, two, or three inches high, they muſt be hoed, or hand-weeded and thinned; thoſe ſowed broad-caſt and in drills, thin ten or twelve inches aſunder; and of thoſe dotted in, thin out the weakeſt to one of the beſt plants in each hole; afterwards keep the whole clear from weeds all ſummer, by occaſional hoeing, &c.

About the end of Auguſt or in September the roots will be well advanced, and be arrived to full growth by October, when they may be digged up for uſe as wanted; or in November a quantity may be taken up, the tops cut off, and depoſited in ſand under cover, to be ready for winter when the others are frozen in the ground.

In the ſpring, about February, thoſe remaining in the ground may be digged all up before they begin to ſhoot, and trenched down to their tops in the earth again cloſe together; and by this check of removal they will keep longer good without running, and will thus continue for uſe till May.

The red beet root is of a ſweet taſte, replete with juice, of which it has been intimated that tolerable ſugar may be made.

To ſave red beet ſeed, either leave or tranſplant ſome largeſt beſt roots in February, two feet diſtance; they will ſhoot to ſtalks, and produce abundance of ſeed in autumn.

2. *Green and White Beets.*

Theſe two ſorts are cultivated for their leaves, which, if allowed good room, will grow large, thick, and ſucculent, but conſiderably largeſt in the white beet; and in both of which are good to boil like ſpinach, and for ſoups, ſtewing, &c.; likewiſe the white ſort, producing largeſt leaves, with very thick fleſhy foot-ſtalks and mid-rib, which in ſummer and autumn when of good ſubſtance, being cut and the ſtalks diveſted of the leafy part, peeled, tied in ſmall bunches, and then boiled and eaten with melted butter like aſparagus, are by many eſteemed a delicate diſh at table.

They are very hardy plants, raiſed every year from ſeed ſowed in February, March, or April, one principal moderate

moderate crop for ſummer and autumn ſupply; or may alſo ſow occaſionally in ſummer, if omitted in ſpring; and may likewiſe ſow in autumn, about Auguſt, for uſe in winter and ſpring following, and to ſtand longer in the ſpring before they run to ſeed, till the ſpring ſowed plants are of proper growth.

Generally ſow each ſort ſeparate in any beds, borders, or open compartments of common earth, either broadcaſt, or in drills as adviſed for the red beet; the plants to remain where ſowed, and when one, two, or three inches growth, hoe and thin them ten or twelve inches diſtance, or the white beet fifteen or eighteen inches aſunder, and the whole kept clean from weeds all ſummer; they will arrive to a proper ſize to begin gathering in their young growth in May and June, but will be of full growth in July, Auguſt, &c. large and ſpreading.

In gathering them for uſe, either cut the leaves as they come to hand clean to the bottom, or only the larger outward productions; the plants will ſhoot out from the heart in ſucceſſional ſupplies; but when deſigned to gather the large white beet for the ribs or ſtalks of the leaves, cut only the largeſt of thickeſt ſubſtance.

To ſave ſeed of the green and white beet, leave ſome old plants in the ſpring, they will ſhoot and furniſh a plentiful ſupply of good ſeed in Auguſt.

BORAGE.

By the Botaniſts, Borago, (Borago officinalis), *or* Officinal Borage.

BORAGE is a hardy annual plant with large oblong rough leaves, ſhooting up tall branchy ſtalks, producing leaves and ſmall blue flowers, and the young leaves and flowers are the uſeful parts, but principally the former when young, to uſe in ſallads and ſome culinary purpoſes, &c. in ſpring, ſummer, autumn, or moſt ſeaſons of the year; alſo the young tops, leaves, and flowers together, to put in wine, negus, &c. for cool tankards in ſummer and autumn: is raiſed from

ſeed

ſeed ſowed in ſpring and autumn, the plants to remain where ſowed, and thinned, come in for uſe the ſame year, ſhoot to ſtalk, produce ripe ſeed, and die in winter; though the autumn-raiſed plants will continue for uſe all winter till ſpring, then will alſo ſhoot, ripen, ſeed, and decay.

There is but one ſpecies, viz.

Officinal or Common Borage.

This plant, where required, may be eaſily raiſed in any common ſoil and ſituation, ſowed in one or two ſmall crops annually; and where once raiſed, if permitted to produce ripe ſeed, plenty of young plants will generally riſe naturally: however, the moſt regular and certain method of culture is to raiſe the neceſſary ſupply by ſowing a ſmall portion every year, in ſpring and autumn.

It is raiſed from ſeed only, ſowed, a principal crop, in the ſpring, in February, March, or April, &c. in any bed or border, either broad-caſt and raked in, or in drills a foot aſunder, the plants to remain where ſowed, and when of one or two inches growth, hoed and thinned from about ſix inches to a foot aſunder, cutting up all weeds: the borage will ſoon ſpread with large leaves cloſe to the ground, and ſhoot up into branchy ſtalks, furniſhed with leaves and flowers, all ſummer, till October, November, or December, if open weather; but in order to continue a regular ſucceſſion of young plants, ſow another ſmall crop in ſummer, and in autumn, about Auguſt or September, to furniſh young leaves the latter end of that ſeaſon, and to ſtand without running to ſtalk for winter and ſpring borage; for the plants not run are hardy enough to ſtand our ordinary winters.

The leaves for uſe may be gathered young, when from about one to two or three inches broad, both before and after the plants ſhoot to ſtalks, as the ſtems furniſh plentiful ſucceſſional ſupplies both of young leaves and flowers in long continuance in ſummer and autumn, to gather as occaſionally wanted, producing alſo abundance of ſeed.

As borage, after ſhooting to ſtalk, continues flowering, ripening, and diſſeminating its ſeed on the ground, abundance

abundance of young plants riſe naturally; theſe, if thought proper, may occaſionally be left for a crop, and thinned to regular order.

To ſave borage ſeed, leave ſome plants of the ſpring crop, they will afford plenty of ſeed in July and Auguſt.

CARDOON.

A ſpecies of Cynara, or family of Artichoke; Cynara Cardunculus *or* Cardoon.

THE CARDOON is a large biennial plant of the artichoke family, growing like that plant, with very large, long, cut-pinnatifid leaves, four feet high or more, having very thick fleſhy foot-ſtalks, which are the only uſeful parts, after being rendered white, tender, and mild by landing up, otherwiſe would be rank, bitter, and tough; grow to perfection for uſe principally in autumn and winter, the ſtalks to ſtew and for ſallads, &c.; raiſed from ſeed annually in one main crop, ſowed in ſpring for tranſplanting in ſummer, four feet and a half aſunder, or ſowed in patches that diſtance, to remain one plant in a place; and in both methods, the plants, when advanced to a large growth in autumn, have the leaves tied together, and each plant landed up high all round for blanching; continuing for uſe in winter, and if any remain, ſhoot in ſpring, producing a ſmall head like that of an artichoke, but without any eatable part, ripen, ſeed, and then wholly periſh.

There is but one ſpecies, viz.

(Cardunculus), or cardoon.

This plant is not now in any conſiderable requeſt, and in many families is never required, or in ſome ſcarcely known; it being of large rampant growth, requires a conſiderable ſcope of room to grow, and for landing them up two or three feet high or more.

It is raiſed from ſeed ſowed the middle or latter end of March, or beginning of April; one principal crop, both

both for tranſplanting and occaſionally ſowed to remain.

To raiſe a crop by tranſplanting, ſow the ſeed in March or April as above, in an open ſituation, either broad-caſt thinly and raked in, or in ſmall drills ſix inches diſtance; and when the plants are come up two or three inches high, thin them five or ſix inches aſunder, that they may have room to grow ſtrong for tranſplanting the latter end of May or in June. When the plants are ſix or eight inches to a foot high, in May and June aforeſaid, taking opportunity of moiſt weather, and allotting a large open compartment of good mellow ground, either dig it wholly, or only at preſent in the rows where the cardoons are to be planted, and drawing out a proper quantity of the beſt plants from the ſeed-bed, trim the long ends of the roots and ſtraggling tops of the leaves, then proceed to plant them as ſoon as poſſible, previouſly obſerving, as before noticed, that as theſe plants require conſiderable room to grow, and a large ſcope of ground for landing them up, they ſhould be planted four feet and a half aſunder, and generally on the level ground, or a place for each plant may be a little hollowed baſon-faſhion, planting them ſingly by dibble that diſtance, giving water at planting, and occaſionally, if dry weather, till they take good root, and begin to advance in growth; in their advancing ſtate, keep them clean from weeds, till three feet high or more, in autumn; then to have the leaves of each plant tied together, and landed up ſeparately all round two or three feet by degrees, as hereafter explained.

Or to raiſe cardoons by ſowing in patches where they are to remain, is a good method, as the plants being of large flaggy growth, will advance freely from the beginning, as not being removed, do not receive any check in their growing ſtate. Sow the ſeed in April, in patches ten or twelve inches wide, hollowed a little, three ſeeds in the middle of each patch, having the patches four feet and half diſtance, the ſame as for the plants; and when the plants in the patches are come up two or three inches high, thin them to one of the ſtrongeſt in each place, giving

giving the remaining plants water, and keep the whole clean from weeds in their advancing growth, till of a proper ſize for landing up in Autumn.

As in the culture of cardoons, where finally planted or ſowed, there is at firſt a large ſpace of vacant ground between the plants, this may be ſowed or planted with ſome ſmall temporary crops, as ſpinach, lettuce, radiſhes, rows of coleworts, or ſmall cabbages, turneps, &c. to come off in ſummer or early in autumn, time enough to admit of landing up the cardoons when arrived to a proper growth.

In autumn, about Auguſt or September, when the cardoons are advanced three feet high or more, begin to land them up, firſt tying the leaves of each plant together with a hay-band cloſely to the tops, then digging and breaking the earth fine, allowing a good bottom ſcope, apply it up round each plant ſeparately one or two feet high, and according to their advanced growth adding more earth by degrees; they will be blanched in two, three or four weeks, to begin digging up ſome for autumn uſe in September or October; but obſerve in October or beginning of November the plants advanced to full ſize, tie them up higher, and then earth them up fully or as high as poſſible, to blanch them of conſiderable length for winter; obſerving at each earthing, to pat the earth gently with the back of the ſpade, to ſmooth and fix it properly around the plants.

In winter in ſevere froſt, either cover the cardoons round with long litter; or thoſe fully blanched may, in open weather, have the roots looſened and the plants laid down on one ſide, and litter ſpread over them in froſty weather.

When they are blanched from two to three feet high or more, they may be digged up for uſe according as wanted; diveſt them of the large outer leaves, and trim the tops of the others; the roots alſo trimmed, and then the whole waſhed clean.

To ſave cardoon ſeed, they ſeldom ripen it well in England; however a few plants may be left to run in the ſpring, and if a fine ſummer and autumn, they will probably produce a little ripe ſeed in September.

CIVES,

CIVES, OR CHIVES.

A ſpecies of the Allium or Garlick family, but of the Onion tribe. Allium Schoenopraſum.

CIVES is a ſpecies of the onion tribe, a ſmall perennial-rooted plant, growing in low cloſe bunches of many minute bulbs together ſhooting up into a tuft of ſmall awl-ſhape leaves in the ſpring, of a warm agreeable taſte, which, either the tops cut off for uſe, or the tops and ſmall roots together ſlipped off to the bottom, are the eatable parts for ſallads, broth, and other occaſions, in lieu of young onions, early in ſpring and ſummer, &c.; raiſed always by ſlipping or parting the roots in ſpring or autumn, and planted a foot aſunder, one ſmall crop, which will continue perennial of ſeveral years duration.

There is but one ſpecies, viz.

(Schoenopraſum), or cives.

This ſmall plant is uſeful in ſpring, or any time when green, for culinary occaſions, and to eat raw, either alone or in ſallads, in want of young onions or others as above intimated, either by cutting off the leaves, which ſhoot up again in ſucceſſion, or may be ſlipped top and root together in ſeparate ſmall plants, like young onions; and for which, and its hardy durable nature and early growth, a ſmall crop ſhould be admitted in every kitchen garden.

It is a very hardy plant that will grow any where, and, once planted, will multiply faſt by the roots in long continuance.

To raiſe a ſmall crop, propagate it by ſlipping or parting the roots, in any of the ſpring months from February till May, or in autumn, either ſlipping off ſome ſide off ſets, or large bunches of old roots divided into ſmall ſets, of from three or four to ſix or eight roots together; plant them by dibble, a foot diſtance, in any bed or border of common earth, they will quickly take root, and encreaſe faſt into large bunches the ſame year,

and continue ſeveral, furniſhing a production of leaves and ſide-roots annually.

However in two or three years, when encreaſed into large bunches, they may be taken up, parted, and replanted in ſmaller heads.

Where any are wanted in ſpring, &c. for immediate or preſent ſupply, ſome full bunches of old plants may be procured and planted a foot diſtance.

CHAMOMILE.

In the Botanic Syſtem, Anthemis (Anthemis Nobilis), Noble *or* Common Chamomile.

CHAMOMILE is a ſmall perennial, aromatic, medical herb, of low creeping growth, producing numerous ſmall compound white flowers, which are the only parts uſed, principally for medical occaſions in a family, to make chamomile tea, &c.; obtained for uſe in their growing ſtate all ſummer, and to gather in that ſeaſon to dry, to keep for winter, &c.; the plants propagated or raiſed by ſlips of and parting the roots, and by ſlips of their rooting ſhoots, in ſpring and ſummer; planted one ſmall crop in a bed or border a foot diſtance; they will quickly grow, ſpread conſiderably, and afford a production of flowers the ſame year; and the ſame plants, continuing by the roots, will furniſh a plentiful ſupply of flowers annually.

The varieties of chamomile are:

Common ſingle-flowered chamomile.
Double-flowered chamomile.

Both theſe varieties poſſeſs nearly equal properties in their flowers for medicinal purpoſes, though the ſingle-flowered kind is eſteemed the ſtrongeſt, and of the moſt efficacious quality for that occaſion, but the double is the moſt generally cultivated; however both or any of the ſorts are eligible; and for domeſtic uſe, is neceſſary to have a ſmall bed or two in the kitchen-garden herbary; or for public ſupply, in market-gardens, have a larger quantity in proportion.

They

They are very hardy plants that will thrive in any common ſoil and ſituation, and ſoon encreaſe conſiderably in their creeping ſpreading order.

Both the varieties are propagated, either by ſlipping the ſide off-ſets with roots to each, or dividing the roots and tops together into ſeparate rooted ſlips, as alſo ſlips or cuttings of the running rooting ſhoots; all which perform in the ſpring, in March, April, or May, or occaſionally any time in ſummer and autumn, in ſhowery weather, and plant them in a bed or border, at ſix inches to a foot diſtance; give water at planting; they will quickly grow and ſpread over the bed, &c. and produce plenty of flowers for uſe the ſame ſummer, and will continue ſeveral years, and furniſh abundance of flowers annually in May, June, July, &c. but obſerve, when the plants begin to decay, or aſſume a dwindling growth, a new plantation ſhould be made in due time.

Their culture is, only to keep them clean from weeds all ſummer; and in autumn, about September or October, cut down all remaining and decayed flower-ſtalks, and decayed parts of the plants, and occaſionally ſpread a little fine earth over the ſurface of the bed in autumn or ſpring.

The flowers may be gathered for uſe all ſummer as occaſionally wanted, and in the ſame ſeaſon always gather a good quantity to dry, then put up in paper bags, &c. to keep for winter and ſpring occaſions.

CELERY.

In the Botanic Syſtem, a ſpecies of Apium, or *family of Parſley*, [Apium dulce] Sweet Apium, *or* Celery.

CELERY is an annual and biennial plant, the ſtalks of its leaves, when blanched by earthing up, are the uſeful parts for ſallads, ſoups, ſtewing, &c. obtained great part of the year, but the principal crops in autumn and winter; always raiſed from ſeed in ſeveral ſowings in ſpring and ſummer, for tranſplanting into narrow trenches, one row in each, for blanching,

by landing up by degrees in their advanced growth, from one to two feet, and acquire perfection the ſame year; and of which the early-ſowed crops in February and March, often pipe or run to ſeed in ſummer, and decay the following autumn; but later ſowings, in April, May, &c. for the main crops, ſtand over the winter till next ſpring, before they run, then all ſhoot up to ſtalks, produce ſeed in autumn, and wholly die.

The varieties of celery are,

Common upright celery.
Solid-ſtalked upright celery.
Giant upright celery.
Celeriac, or turnep-rooted dwarf celery.

Of theſe varieties of celery, the firſt is the principal ſort for the general crops, the ſecond is valued for the ſolid property of its ſtalks, not hollow like the former; the third for its tall large growth; and the celeriac is eſteemed chiefly for its thick, fleſhy, turnep-like root.

All the ſorts are raiſed from ſeed ſowed annually in three different ſowings, from March till the latter end of May or beginning of June, all for tranſplanting into trenches made a foot wide and yard diſtance, in May, June, July, till September, October, and November; and according as the plants advance in growth, are to be earthed up on both ſides, repeating it every week or fortnight, to blanch or whiten the ſtalks, from twelve to eighteen inches or two feet length or more, and are then fit for uſe.

Any of the upright ſorts may be cultivated; but I would prefer the common upright celery for the principal or general crops.

For the ſeveral crops, ſow a ſmall portion for early ſupply, the latter end of February or beginning of March, in a warm border of rich light earth, or in a moderate hot-bed to bring the plants forwarder; and in the middle or latter end of March ſow a larger ſupply; but as in theſe ſowings for early celery, many will run for ſeed in their advanced growth, they are not to be depended on for main crops; therefore in April ſow a full crop in beds of good earth in an open ſituation; a moderate quantity in May; and may alſo ſow a ſmall portion

portion in the beginning of June, for late crops to ſtand till ſpring, about April or May, before they run to ſeed.

The ſeveral ſowings ſhould be performed either by ſowing on the ſurface, and raked in lightly; or firſt rake the ſurface of the beds even, ſow the ſeed, ſmooth it down lightly with the ſpade, and ſift earth over it a quarter of an inch deep; otherwiſe raking the beds, ſhove ſome earth thinly off the ſurface into the alleys; in a ridge along the edge of the bed, then ſow the ſeed, and with the rake draw the earth over it evenly, and lightly rake the ſurface ſmooth.

In the different ſowings, when the plants are two to three or four inches high, thin the ſeed-beds, and prick the plants drawn out into other beds of good rich earth, or ſome of the early in a hot-bed, each about four inches diſtance, and watered; alſo water the ſeed-bed, to ſettle the earth to the remaining plants; and, in two or three weeks after, prick out another quantity; and in dry weather ſupply them with proper waterings till from ſix to eight or ten inches high, then tranſplanted into trenches.

In May, June, July, according to the forwardneſs of the plants, prepare to plant out a quantity into trenches; chooſing an open ſituation of rich ground, cleared from weeds; mark out trenches a ſpade wide, and a yard, or three feet and a half, aſunder. Dig out each trench a moderate ſpade deep, ſpreading the earth equally to each ſide in the intervals; then dig the bottom of each trench evenly; or, if poor land, firſt add a little rotten dung, and dig it in; then, drawing up the plants, trim the long roots and tops of the ſtraggling leaves, and, by dibble, plant a row along the middle of each trench, five or ſix inches diſtance, and directly well watered, repeating it occaſionally till they take good root, and begin to grow.

In the above manner continue planting out a quantity, once or twice every month, till September or October; or, in November at lateſt, plant out all remaining late plants, either of ſmall or large ſize.

According as the plants advance in height, ten or twelve inches high, begin to earth them up by degrees; firſt with an hoe, afterwards with a ſpade, when more conſiderably advanced, breaking the earth with the hoe or ſpade, and apply it up to each ſide of the rows, from three or four to five or ſix inches high; repeating this moderately once a week or fortnight till blanched of a proper length, from twelve, fifteen, or eighteen inches, to two feet, according to the ſeaſon and growth of the plants; obſerving in the winter crops to land them up higher in October or November, within a few inches of the top, to defend them more effectually from froſt, as well as to blanch them a conſiderable length.

When they are to be taken up for uſe, begin at one end of a row, and dig open the ground down to the roots, that they may draw up whole without breaking the ſtalks.

Between rows of latter planted celery, in July, Auguſt, September, if required to make all advantage of the kitchen ground, may plant one or two rows of endive or lettuce, or two or three rows of quick-hearting cabbage coleworts, all for autumn or beginning of winter uſe, to come off time enough to admit of earthing up the celery fully to the proper height when at full growth.

In October and November plant out all the lateſt raiſed celery, of the May and June ſowing, into moderate trenches, to ſtand till ſpring; and which, in their advanced growth, both in winter and the early ſpring months, earth up moderately in a gradual order; finiſhing it wholly in February and March: the plants will continue for uſe till May, then will pipe or run to ſtalk, and ſoon after become unfit for eating, eſpecially for ſallads, though it may be occaſionally uſed for ſoups.

Any large late celery plants remaining in the nurſery-beds, and intended for planting in October or November, being then planted in their full growth in moderately deep trenches, may have ſome of them landed up as ſoon as planted, five or ſix inches or more, according

cording to their length, and afterwards earthed up higher by degrees, in winter and ſpring.

Sometimes in planting the general crops of celery the following method is alſo practiſed in ſome places. Mark out ſpaces ſix feet wide for trenches, allowing four or five feet intervals between them; then dig the wide ſpaces lengthways, a moderate ſpade deep, laying the earth equally to the right and left in the intervals; afterwards digging the bottom of the trenches in an even manner, plant the celery in croſs rows, a foot aſunder; and then, according as they advance in growth a foot high or more, of a proper ſize for earthing, trim in ſome earth between the rows from the intervals on each ſide with a ſpade; and, to aſſiſt which, when the plants are conſiderably advanced, have two thin boards to introduce between the rows to keep the leaves of the plants up cloſe, ſo trimming in the earth between the boards four, five, or ſix inches depth, or more; and one row thus earthed, draw forth the boards carefully, and proceed in the ſame manner with the reſt, till the earthing is finiſhed.

As celery is in great eſtimation for giving a reliſh to peas-ſoup; that in default of plants, eſpecially in ſea voyages, the ſeed thereof may be ſubſtituted for that purpoſe, as it will communicate the ſame flavour in the fulleſt degree.

The celeriac, or turnep-rooted celery, is valued principally for the large ſwelling root. Sow the principal crop end of March, or in April, and more in May; and when the plants are of five or ſix inches growth, prepare to plant them out in rich ground, which being digged, draw drills with an hoe, four, five, or ſix inches deep, and a yard diſtance: plant a row of the celery in each drill, ſix inches aſunder; and when they are well advanced in growth, and the roots ſwelled of ſome conſiderable ſize, draw earth to them with an hoe, to render them white, tender, and mild to eat, either boiled or raw.

To ſave celery ſeed, leave ſome rows of the main crops in February or March; or at that ſeaſon tranſplant a quantity of the ſtrongeſt plants, firſt cutting

down the large leaves to a foot long, and plant them in rows two feet diſtance; they will ſhoot up into ſtrong ſtalks, and furniſh plenty of ſeed in July or Auguſt.

CRESSES;

In Botany, a Species of Lepidium, *or Dittander* (Lepidium ſativum); *cultivated Dittander, or Garden Creſs.*

CRESSES, conſiſting of three varieties, are all ſmall annual plants of a warm agreeable reliſh. The young leaves are the parts uſed while quite young, to eat raw in ſallads, with other ſmall ſallad herbs, as muſtard, rape, radiſh, &c. obtained in ſpring, ſummer, or all the year; always raiſed from ſeed only, ſowed every week or fortnight, all ſpring and ſummer till October; then once a fortnight or three weeks during the winter, if required; for the plants of each ſowing will not continue good for ſallads longer than the above periods before they will be too large, rank, and hot to eat; the plants to remain where ſowed, and being of quick growth, they ſoon come in for uſe; and thoſe of the ſpring and ſummer ſowings quickly run for ſeed, ripening in ſummer and autumn; then periſh, top and root.

The varieties of creſſes are,

Common garden creſs.
Broad-leaved garden creſs.
Curled-leaved creſs.

Theſe three ſorts being accidental varieties of one ſpecies, though they generally retain their difference, are equally good for uſe; but the common garden creſs is the moſt permanent in its kind, and the ſort moſt commonly eſteemed for general culture.

As a ſmall ſallad herb, creſſes are of the principal ſorts, and ſhould be ſowed plentifully in ſpring, ſummer, or all the year, if required in conſtant ſupply in ſallads, generally ſowed in aſſemblage with other ſmall ſallad herbs of a warm acrid flavour, as muſtard, radiſh,

diſh, rape, &c. all ſowed principally in ſhallow drills, three or four to ſix inches aſunder, each ſort ſeparate, and very thick, and to remain where ſowed; and while the plants are quite young, of a few days, or but a week or two old, principally in the ſeed-leaves, or the others but very little advanced, are of proper growth for uſe, cutting them off cloſe to the ground: the creſſes, if required, will ſhoot up again, though the leaves will be hotter, and leſs tender to eat, than thoſe riſing immediately from the ſeed: however, where this is not materially regarded, a crop of creſſes will admit of ſeveral cuttings; but when required quite young, one ſowing affords generally only one or two gatherings; therefore to have regular ſucceſſion of young, the ſowings muſt be frequently repeated, which, in ſpring, ſummer, and autumn, are performed in the full ground once a week or fortnight; and early in the ſpring and in winter, in hot-beds, or under glaſſes, once a fortnight or three weeks.

In ſpring, about the middle or latter end of February, or beginning of March, according to the temperature of the ſeaſon, may begin ſowing creſſes, &c. in the natural ground, firſt on warm borders, afterwards in any other compartments, in light ground, digged, and raked fine; and the ſeed ſowed in flat ſhallow drills very thick, and lightly covered in with the earth, not exceeding a quarter of an inch deep, or but juſt covered; and if the earlieſt ſowings are defended with a garden mat, in cold weather; the plants will come up ſooner; but when come up, uncover in the day time; and continue ſowing every ten or twelve days, or a fortnight, all the ſpring months till May.

But, as the weather becomes warm in May, June, and all ſummer, if required, ſow every week or ten days in ſhady borders, or ſhade the beds with mats in the heat of the day, when the ſun is hot, and give frequent waterings.

After the heat of ſummer, &c. about September, ſow in any open ſituation till October, then ſow in warm borders; and, in November, if cold weather, ſow under glaſſes, or covered with mats in cold nights.

But in winter, ſow in frames defended with lights; or, if froſty, or very cold, ſow in hot-beds, every fortnight or three weeks, till February or March, or even continue ſowing in hot-beds in thoſe months, if very cold weather, or when required to have ſome for cutting as ſoon as poſſible.

As however in creſſes, muſtard, rape, radiſh, &c. to raiſe them in young growth for ſallads, one mode of cultivation is applicable to the whole, I will refer for further particulars in their general culture for that purpoſe to the article *Small Sallad Herbs.*

The ſeeds of creſſes and muſtard, &c. are uſeful to carry to ſea, where having ſome flat wide diſhes, with about an inch depth of light mold therein, the ſeed ſowed, and daily watered, it will quickly grow to gather for ſallads; or will alſo grow in wet cotton.

To ſave creſſes ſeed for ſowing, either ſow ſome to ſtand for that purpoſe, in March or April, in ſhallow drills ſix inches aſunder; or, for private uſe, ſome of the ſpring-ſowed plants in the open ground, when become too old for gathering, may be left to ſhoot up to ſtalks; and all of which will ripen plenty of ſeed in June and July, when pull up the ſeed-ſtalks in dry weather, expoſe them in the ſun a few days to harden the ſeed, then beat it out, clean it from the huſks, afterwards ſpread on cloths a day or two to dry thoroughly, and then put up in bags, &c.

CHERVIL;

In Botany, a Species of Scandix *(Shepherd's Needle), or Greater Myrrh.*

CHERVIL is an hardy annual ſweet herb of the aromatic tribe, growing with ſmall divided leaves, like parſley, cloſe to the ground, which are the uſeful parts of the plant, employed in ſoups, ſallads, &c. principally in autumn, winter, and ſpring, or all the year, in ſome families; raiſed from ſeed ſowed annually in ſmall portions, in autumn and ſpring, &c. either in drills

drills nine inches aſunder, or broad-caſt, and the plants to remain where ſowed; generally ſowing ſome in Auguſt, for autumn, winter, and early ſpring ſupply, it continuing green all winter; and occaſionally ſowing in March or April, or every month from March till Auguſt, if required young, all ſummer; as theſe ſowings ſoon run for ſeed the ſame year, the ſeed ripening in autumn; and the plants then wholly decay.

The ſpecies of chervil are,

Cerefolium, or ſmooth-ſeeded chervil.

Anthriſcus, or rough-ſeeded chervil.

Theſe ſmall herbs are eſteemed for their aromatic property, for ſoups, ſallads, and other occaſions, as being of a warm grateful flavour; principally in moſt demand for autumn, winter, and ſpring ſervice; and where a full collection of ſweet herbs are required, theſe ſhould be admitted; eaſily obtained by different ſowings in ſpring, ſummer, and autumn: but, as the ſpring and ſummer ſowings ſoon go to ſeed the ſame year, if required in conſtant ſupply all ſummer, ſome muſt be ſowed every month till Auguſt, as before obſerved; and an Auguſt ſowing to ſtand all winter, till ſpring following, before the plants run, furniſhing green leaves for uſe all winter.

They are hardy plants, that will proſper almoſt any where in lightiſh ground, either in open or ſhady ſituations, or under trees, &c.

If required in conſtant ſupply all the year, ſow a ſmall portion in February or March, in ſhallow drills, nine inches or a foot diſtance, in the manner of parſley, or broad-caſt and raked in; and as theſe ſowings ſoon go to ſeed, ſow more in April and May, and every month till Auguſt, for ſucceſſional ſupplies of young plants all ſummer and autumn; the plants always to remain where ſowed, not thinned; only kept clean from weeds is all they require; and when two or three inches high, may begin gathering the leaves for uſe, by cutting them off as wanted.

But in Auguſt, and beginning of September, ſow a crop in a warm ſituation to ſtand the winter; and for

early ſpring ſupply, till April, &c. keeping the plants clear of weeds, as above.

Thus ſupplies of chervil are obtained either all the year, or at particular ſeaſons, as may be required.

To ſave chervil ſeed, either ſow for that purpoſe in Auguſt, September, or ſpring;-or leave ſome rows of the plants raiſed for uſe in theſe ſeaſons of ſowing; they will ſhoot to ſtalk in ſpring and ſummer, produce the ſeed in ſpreading umbels, ripening in July or Auguſt.

FINOCHIO, *or*, AZORIAN FENNEL;

Of the Family of Dill, and Variety of Fennel (Anethum Fœniculum Azoricum).

FINOCHIO is of the fennel tribe, but an annual plant, and growing with finely-divided leaves, and a thick fleſhy ſtalk, ſwelling at bottom, which latter is the part uſed, when blanched by earthing up, both to eat raw, ſliced in ſallads, or alone, and for ſtewing, &c. is raiſed from ſeed annually, ſowed in ſpring or ſummer, every month, to have a conſtant ſucceſſion, as it ſoon goes to ſeed; generally ſowed in drills two feet aſunder, to remain; and each crop attains perfection the ſame year, and runs to ſeed ſoon after.

There is but one variety, Italian fennel, or Finochio. This plant is not in very general eſtimation; but where it is required, the culture is as follows.

Sow the firſt crop in March, thinly, in drills two feet aſunder, and the plants to be thinned five or ſix inches diſtance, and the ground hoed between the rows; and when in advanced growth the ſtalks are large and ſwelling below, hoe earth up round them ſeveral inches high, and in two or three weeks they will be blanched white and tender to take up for uſe.

To have ſucceſſional ſupplies, continue ſowing every month from March till the latter end of July, which will furniſh ſupplies for ſummer, autumn, and beginning

beginning of winter; but in winter ſhould be defended from froſt with ſtraw litter, &c.

The early ſowed plants will produce ripe ſeed in autumn.

COLEWORT;

A Variety of the Cabbage Family (Braſſica).

THE COLEWORTS are properly open greens, ſome not cabbaging; others are of the heading cabbage kind, but uſed in their young open green ſtate, which latter are called cabbage coleworts, and are greatly ſuperior to the common old open colewort for eating; are cultivated for uſe at any time of the year; but the principal ſeaſons are autumn, winter, and ſpring; are biennial plants, always raiſed from ſeed annually in ſummer and autumn for the main crops in the above ſeaſons; and in ſpring for ſummer coleworts; all which for tranſplanting a foot diſtance, and come in for uſe the ſame year in ſummer, autumn, &c. till next ſpring; then thoſe ſowed before the preceding Auguſt ſhoot for ſeed, and the plants die: but the latter ſowings of the beginning of Auguſt, &c. will ſtand over the following ſpring without running; and what are not uſed for coleworts, thoſe of the cabbage kind, come in for heading cabbages in ſummer, to uſe in young hearts, or half or full growth.

The varieties of coleworts are,

Common open colewort (not cabbaging).

Cabbage colewort (of the heading cabbage tribe; but, as coleworts, to be uſed while young, open, and green).

The principal variety of theſe two for garden culture, and for boiling greens, is the cabbage colewort, raiſed from the ſeed of any of the ſmaller white quick-hearting cabbages, ſuch as the ſugar-loaf, Yorkſhire, or Batterſea kinds, or other forward heading kinds; ſoon forming ſmall cabbagy hearts, preferable to the large late cabbages, which are too rampant and open in their

colewort growth; the others growing closer, with full hearts, in their young green state, for coleworts, as well as more tender to boil; and the common open colewort, though hardiest to stand the winter, boils rank and tough, and not proper to cultivate for the table; more eligible to raise in fields for cattle; but the cabbage coleworts of the above sorts, being excellently tender sweet eating greens at all seasons, both in their open state and small hearting growth, and growing quickly to a proper size for use, should be raised in plentiful supplies; especially as they admit of planting in close rows only a foot asunder, comprising many in the space of ground allotted.

Coleworts, as before intimated, are raised principally for autumn, winter, and spring eating, from September or October till the end of May, or till succeeded by young summer cabbages, and for which crops they are obtained by sowing in June, July, and August, and planted out the same seasons, at different times, till November, and they advance to proper size for use accordingly, which, in their green colewort order, should generally be used in their young open growth, or also after they begin to heart or advance in small light heads. But green coleworts may also be raised for use all the summer months, if required, by sowing in April or May and June, &c. And in the cabbage coleworts, what are not used in their open colewort state, will grow to good cabbages of smaller or larger growth, which, in this sort, is a double advantage.

Always for garden culture of coleworts, or in field culture for the supply of the markets for the table, raise those of the heading cabbage kind, and principally of the smaller or moderate close-growing quick-hearting sorts, as the sugar-loaf, Yorkshire, Battersea, and Russia cabbages, &c. as before observed; which both come in quicker, in closer full hearts, and boil remarkably tender and good, and which, as above remarked, admit of culture both for open coleworts, and some to stand for small hearted, or young heading cabbages, what are not wanted in their colewort state.

The

The general time for ſowing coleworts is the middle, or any time in June and July, for the principal autumn and winter ſupply; and the firſt or ſecond week in Auguſt for ſpring plants, to ſtand in that ſeaſon without running; for thoſe ſowed ſooner would moſtly all fly up to ſeed in their early ſpring growth; but the Auguſt ſowings ſtand, and what are not uſed for coleworts, will heart for good ſummer cabbages; therefore mark the above times. Sow in June for a full crop of autumn coleworts; the middle of July for late autumn ſervice, and a main winter crop; and ſow in Auguſt for late winter and general ſpring coleworts: or, if required to continue a ſucceſſion of green coleworts in ſummer, ſow alſo in March, April, and May.

Generally perform each ſowing in an open ſituation, in mellow freſh digged ground, divided into four or five feet wide beds, ſowing on the ſurface broad-caſt; tread down the ſeed, and rake it in with regularity, giving water in very dry hot weather.

When the young plants of the different ſowings are come up, and advanced with leaves an inch or two broad, and if they ſtand very thick in the ſeed-beds, ſome may be thinned out, and prick them in other beds four inches diſtance, and watered; which thinning will give more room for the remaining ſeed-bed plants to grow ſtronger for planting out; and thoſe in the pricked out beds, having a month's growth, will alſo obtain good ſtrength for ſucceſſional tranſplanting; then obſerving that when the plants, both in the ſeed and pricked out beds, are of three, four, to five or ſix inches growth, or with ſeveral leaves two or three inches broad or more, having then acquired proper ſize and ſtrength for tranſplanting finally, ſhould proceed to plant them out at different opportunities; or where not convenient previouſly to prick out any from the ſeed-beds, they, according as advanced to proper growth, may be planted out, the largeſt at once, from the ſeed-beds, in the places where they are finally to remain, in June, July, Auguſt, September, till November, &c. in rows eight or ten to twelve inches diſtance, by ſix to eight or ten inches in each row; and if any are ſowed in the ſpring,

for

for ſummer coleworts, or ſmall young colewort-cabbage, plant them out as above in April, May, June, the ſame diſtance.

In planting out coleworts, if neceſſary to make the beſt advantage of all parts of the kitchen-ground, or to gain time where ground is not vacant, ſome may be planted between wide rows of other plants, as between rows of cauliflowers of advanced growth, alſo between wide rows of cabbages, beans, &c. that will ſhortly be gathered or cleared off the ground, likewiſe between trenches of new-planted celery in autumn, two or three rows in each interval, to be gathered time enough to admit of full earthing up the celery; or between rows of artichokes and cardoons; and planted in wide rows a yard aſunder, on the winter-ſpinach ground; or two or three rows in the alleys between aſparagus beds, after landing up in October or November; alſo then on the aſparagus beds to gather off in a young growth, as alſo late in autumn between rows of young aſparagus planted to take up for forcing; and in any other wide vacant ſpaces between rows and beds of plants, where there is not ſufficiency of ground vacant from crops, to admit of planting full crops of coleworts in diſtinct compartments; as the coleworts thus interplanted, either between temporary or continuing crops, will be gaining time in growth without waiting for planting till the ground is cleared; and as they will be generally gathered off for uſe in their young growth, either in their open colewort ſtate, or in ſmall cabbaged hearts, they will not impede the growth of the plants between which they are thus planted.

However, where there is plenty of vacant ground, plant the principal continuing crops in ſeparate large compartments by themſelves, in rows from ſix or eight to twelve inches diſtance.

In the advancing growth of the different plantations of coleworts, all the culture they require after final planting is, to have occaſional hoeings to eradicate weeds, and to looſen the ground about the plants, and draw a little earth to the ſtems to encourage their growing freely and ſtrong; and in the autumnal-planted main

main crops that are put out in September, October, November, for winter and ſpring ſervice, give a good hoeing or two before winter, in October and November, to cut up all advancing weeds, and to looſen the ſurface of the earth; that it may remain clean, looſe, and drier about the plants all winter, which will contribute conſiderably to their proſperity in growth.

When the plants of the ſeveral crops of coleworts are advanced from about ſix to eight, ten, or twelve inches high, furniſhed with ſeveral principal leaves from five to ſix inches broad or more, and with tolerably full hearts, they will then be of a proper growth to gather for general uſe as open coleworts; and for which may either draw or cut them clean off as they come, if wanted to clear the ground for other crops; or on particular occaſions, may take only every other row, and the ſame in the plants of each of the remaining rows, eſpecially in ſome particular ſpring crops, leaving the others, thus thinned, to obtain a larger growth, or ſome to ſtand for ſmall hearting colewort cabbage, or with ſmall light cabbaged hearts, or ſome occaſionally to become full-grown cabbages, as may be convenient or required.

The common open colewort may alſo be cultivated as above, in ſmaller ſupplies, for its more hardy nature to ſtand the rigours of ſevere winters, as a reſerve when the others happen to ſuffer conſiderably by the froſt; alſo to cultivate in large ſupplies in fields for feeding milch cows, or other cattle, in winter and ſpring, in a ſcarcity of other fodder; though this formerly was moſtly cultivated as the common garden colewort, but now generally excluded, eſpecially about London, where they cultivate principally the cabbage colewort in amazing quantities in the vaſt farming garden-grounds for ſeveral miles round that extenſive city, for the ſupply of its ſeveral markets; for which they are always bound up in cloſe thick bunches; and where it is aſtoniſhing to ſee the prodigious quantities, early in a morning, in numerous waggon and cart loads, as well as of cabbages, cauliflowers, turneps, peas, beans, and all other kitchen vegetables.

To ſave colewort ſeed, allot for this purpoſe principally the cabbage coleworts, chiefly of the early and ſmaller faſt-hearting kinds before mentioned, of ſuch as are advanced to a cabbaged growth in autumn, and which, in October or November, digged up with full roots, pull off the large under-leaves, and then trenched down to the heads in rows two feet aſunder, as obſerved in the common heading cabbages for ſeed, which will ſhoot in the ſpring, and ripen ſeed in July or Auguſt: or ſeed of the common cabbages, of the ſorts as above, will be eligible for the ſame purpoſe.

And as to the common open colewort for ſeed, a quantity may be planted out in Auguſt, September, or October, by common dibble planting, in rows two feet aſunder, either of the ſummer-ſowed plants, to run for ſeed the ſpring following, or of the Auguſt ſowing to continue in a ſtronger growth all next ſpring and ſummer, to run for ſeed the ſpring after, and afford a larger production.

CLARY;

Of the Family of Salvia *or Sage* (Salvia Sclarea), *or Garden Clary.*

CLARY is a biennial plant, producing broad, heart-oblong wrinkled leaves, ſpreading on the ground, of a ſtrong ſcent, and which are the parts uſed for ſome particular family uſes, medicine, &c. in ſummer, or moſt times of the year; raiſed from ſeed annually ſowed in March or April, one ſmall crop for tranſplanting in ſummer, one or two feet diſtance: the leaves will grow large and ſpreading the ſame year, and continue till the ſecond ſpring, then ſhoot up into ſtrong ſeed-ſtalks, furniſhing ripe ſeed in autumn, and then wholly periſh.

There is but one ſpecies for the kitchen-garden, viz. [Sclarea], or garden clary.

This plant is not in general demand as a neceſſary family vegetable, and, in many families, is never required.

quired; however, where it is in requeſt, a ſmall bed or two may be eaſily raiſed from ſeed which, as the plant is a biennial, dying the ſecond year, muſt be ſowed every ſpring.

One ſmall crop raiſed annually is ſufficient, as the plants will furniſh a regular ſucceſſion of leaves for uſe.

Sow the ſeed in March or April, in any bed or border of common earth, broad-caſt and raked in; and when the plants are come up of two or three inches growth, in ſummer, tranſplant them in rows two feet by eighteen inches diſtance, to have room to ſpread; keep them clean from weeds is all they require; and the leaves will grow large for uſe to gather the ſame ſummer, autumn, &c. till next ſpring, then will run for ſeed.

In gathering clary for uſe, take the largeſt outward leaves, the others will advance in proper ſucceſſion.

To ſave clary ſeed, leave ſome year-old plants in the ſpring, they will ſhoot to ſtalk and produce plenty of ripe ſeed in autumn.

CORIANDER.

In the Botanic ſyſtem, Coriandrum (Coriandrum ſativum), *or cultivated Coriander.*

THE CORIANDER is a ſmall tenderiſh annual plant, a ſallad and pot-herb of an aromatic flavour; growing with ſmall divided leaves reſembling parſley, which are the parts uſed for ſallads and culinary purpoſes, principally in ſummer and autumn, or occaſionally in winter and ſpring: always raiſed from ſeed annually, in ſeveral ſmall ſowings, in ſpring, ſummer, and autumn, if a conſtant ſucceſſion is required, as the plants ſoon run for ſeed: generally ſowing in drills ſix inches aſunder; the plants to remain where ſowed; and when two or three inches high, are of proper ſize to gather; and the plants ſoon after run to ſtalks, producing umbels of ripe ſeed in autumn, then die.

The ſpecies for uſe are,

Cultivated or greater coriander, ſeed globoſe.

Teſticulated ſmaller ſweet coriander, ſeed teſticled.

These herbs are in estimation in some families for their peculiar high flavour, in others they are not in request; the first sort is that principally cultivated as a pot and sallad herb, also in some places for its seed.

This plant being somewhat tender, if required early, should be either sowed in a hot-bed, or under glasses, or in a warm border; but from April till September will grow in any open compartment.

It is raised from seed sowed annually in spring, summer, and autumn, if required in constant supply; for as the plants quickly go to seed, the sowings should be repeated every month or six weeks, to continue a regular succession; only a small bed sowed each time.

Begin sowing in March or April, on a warm border; or, if required as early as possible, may sow in February or March, in a moderate hot-bed, or under a frame, or hand-glasses; but in April, May, and throughout the summer, sow in any open situation; and for winter, sow in September, &c. in a warm border, or under a frame. Generally for each sowing, draw small drills, six inches asunder, and an inch deep, sow the seed in the drills moderately thin, and cover it regularly with the earth, the plants will soon come up; are to remain where sowed, and when from two to three or four inches high, the leaves may be gathered for use, cutting them close to the bottom; will shoot up again, but soon run to seed, especially the spring and summer sowings; those of August and September will stand longer, and the late sowings in September, &c. will stand the winter without running.

If coriander is required in winter, sow some in August and September in a warm border, to furnish a supply in that season; and when cold weather commences, defend the plants with a frame and lights, or with hand-glasses, or occasional protection of garden mats; or beginning of October, may sow in a frame to continue all winter, or occasionally forwarded in a hot-bed; and in either of which defend the plants from frost.

To save seed, leave some spring sowed plants, or sow in March and April to stand for that purpose, they will run to stalk and produce ripe seed in July, &c.

CORN-

CORN-SALLAD, *or* LAMB'S LETTUCE.

A Species of Valerian, Valeriana Locuſta (Locuſta, *or* Lamb Lettuce).

THIS is a ſmall annual plant, growing with a tuft of ſmall upright oblong leaves three or four inches high; a native of corn fields, but cultivated in gardens for winter and ſpring ſallads, being hardy to ſtand the froſt, to uſe in default of, or in ſcarcity of common lettuce, occaſionally in winter and early in ſpring; and is raiſed from ſeed ſowed annually, a ſmall crop in Auguſt and September, to ſtand over the winter; and alſo ſowed in the ſpring, about February, &c. for ſucceſſional ſpring ſupply, each crop ſowed broad-caſt, and the plants to remain, and thinned two or three inches; they will continue till May, then ſhoot for ſeed, ripening in ſummer and autumn, then decay.

The varieties are,

Garden corn-ſallad, with ſpear-ſhape intire leaves.
Field linear-leaved.
Oblong obtuſe-leaved.

Of theſe varieties, the firſt two are commonly cultivated, and which being hardy to ſtand the winter and early ſpring, are proper to raiſe in ſmall ſupplies to uſe young in ſallads, till the common lettuce are plenty; but when old, and in warm weather, is rank taſted; ſeldom good after April, unleſs uſed while quite young.

It is raiſed from ſeed ſowed every year, a principal crop in Auguſt and beginning of September, to ſtand the winter, and for early ſpring cutting; and in February, or beginning of March, for ſucceſſional young ſpring plants. Of each ſow a ſmall bed or two, broad-caſt and raked in, or in drills ſix inches aſunder; the plants to remain where ſowed, and thinned about three inches diſtance; and when from about two or three to four inches growth, they are of proper ſize to gather for uſe; cutting them clean up to the bottom in a thinning order, to give room for the remaining plants to grow larger for future gathering.

They

They are proper to uſe in ſallads, with creſſes, muſtard, and other ſmall herbs of that kind.

To ſave ſeed for ſowing, leave ſome of the autumn-raiſed plants in the ſpring, or ſow a ſmall portion to ſtand for that purpoſe; they will run to ſtalk in ſpring and ſummer, and produce plenty of ſeed in June or July.

BURNET.

In the Botanic Syſtem, Sanguiſorba, *or* Garden Burnet.

BURNET is a ſmall perennial herb, growing with a low tuft of many ſmall pennated or winged leaves, green ſummer and winter, of a warm taſte, uſed young for winter and ſpring ſallads, &c. or as required at any ſeaſon of the year; raiſed both from ſeed, in the ſpring, for tranſplanting a foot aſunder; and by ſlipping or parting the roots, ſpring or autumn, planted the ſame diſtance: one ſmall crop once in ſeveral years. They will produce plenty of leaves for uſe at all ſeaſons, ſhoot up with ſlender ſtalks in ſummer for flower and ſeed, ripening it in autumn; then the ſtalks decay, but the roots continue of ſeveral years duration.

One ſpecies, viz.

Officinal or common burnet.

This plant, where required for its leaves in ſallads and other occaſions, need only be raiſed in a ſmall bed or two for the ſupply of a family, or in larger quantities as required for market; is very hardy to grow in any common ſoil, both in open and ſhady ſituations; and is eaſily raiſed from ſeed or ſlips; or for immediate uſe, ſome full plants may be obtained at the nurſeries, for planting in ſpring or autumn.

It is raiſed both from ſeed ſowed in the ſpring or autumn, and by ſlips off or parting the roots in the ſame ſeaſons.

To raiſe it by ſeed, ſow it either in the ſpring about March or April, or in Auguſt, in a bed of light earth, either

either in ſmall drills, or broad-caſt and raked in: and when the plants are two or three inches high in ſummer, plant in a bed or border a ſmall quantity, a foot aſunder, to remain: they will advance freely in growth, and encreaſe in root and top into tolerable full plants the ſame ſeaſon: continue ſeveral years, always furniſhed with plenty of leaves.

Or by ſlips off, or parting the roots of old plants, either in ſpring or autumn, take off ſome ſide off-ſets, root and top together, or large plants parted into ſeparate rooted ſlips, and planted a foot aſunder, to remain.

In gathering burnet for uſe, generally take the young leaves, cutting them down cloſe, and plenty of young ones will riſe from the bottom in regular ſucceſſion.

With regard to culture, keep the plants clean from weeds; and as they will run to ſtalks in ſummer, thoſe ſhould be cut down either wholly or in part, to encourage plenty of young leaves from below; alſo when the leaves are grown rank, cut them cloſe to promote a freſh production of young; and in autumn cut away all remaining flower ſtems, clear the beds from weeds; and then, or in ſpring, dig lightly between the plants with a ſmall ſpade or trowel, or occaſionally ſpread a little freſh earth between them in the ſpring.

To ſave burnet ſeed, permit the ſtems of ſome to run in ſummer, which will afford plenty of ſeed in autumn.

DILL.

In the Botanic Syſtem, Anethum (Anethum graveolens), *Rank-ſcented* Anethum, *or common Dill.*

DILL is a hardy annual aromatic herb, reſembling fennel, but of more ſlender growth, with finely-divided leaves, and a tall ſlender ſtem, terminated by ſeed umbels, which are the principal uſeful parts, and occaſionally the leaves, to introduce in vegetable pickle as cucumbers, kidney beans, walnuts, &c. to give a high flavour: the leaves alſo in ſauces, and the whole plant

plant for medicine; obtained for uſe in ſummer and autumn, and raiſed from ſeed annually one ſmall or moderate crop ſowed in ſpring or autumn, in drills a foot diſtance, or broadcaſt; the plants to remain where ſowed, and thinned: acquire full growth in July and Auguſt, ripen ſeed, and then die.

There is but one ſpecies, viz.

Garden or common dill.

This is a hardy plant, will thrive in any garden ground, but beſt in a lightiſh ſoil; is a neceſſary herb to have for family uſe; of eaſy culture either to raiſe by ſowing annually; or, as often many plants riſe naturally from the ſcattered or ſelf-ſowed ſeeds of plants the year before, theſe may ſerve occaſionally: however, the moſt regular way is to ſow a ſmall crop every year. One crop is ſufficient.

It being always raiſed from ſeed only, ſow it in February or March, not later than April; or may be ſowed in autumn, in Auguſt or beginning of September, to come up earlier and ſtronger in ſpring; either ſowing in ſmall drills a foot aſunder, or broad-caſt and raked in; the plants remaining where ſowed. Thoſe ſowed broad-caſt ſhould be thinned in May or June, about ſix inches diſtance; they will arrive to full growth in the ſeed umbels in July and Auguſt; then may be gathered or pulled up for uſe; and, if for market, tie the ſtalks and umbels together in bunches.

They are to be uſed principally while in their green ſtate, eſpecially for culinary uſes, for pickles, &c.

To ſave ſeed of dill, either leave ſome rows of the plants in ſummer, or ſow a portion in ſpring, to ſtand for that purpoſe: they will ripen plenty of ſeed in autumn; or as before hinted, from the ſcattered ſeeds many plants often riſe naturally in the ſpring, which, for ſmall ſupplies, may probably be ſufficient for the ſervice of a family.

FENNEL;

A Species of the Family of Anethum or Dill (Anethum Fœniculum), *Fœniculum, or Fennel.*

FENNEL is a perennial-rooted plant, of the aromatic pot-herb kind, growing with finely-divided leaves, which are the uſeful parts, for various kitchen occaſions moſt times of the year, and it ſhooting up with tall ſtems, crowned by large umbels of ſeed, theſe are alſo uſed for medical purpoſes; is raiſed principally by ſeed ſowed in the ſpring or autumn, broadcaſt and raked in, or in drills a foot aſunder, both to remain, and thinned, that diſtance; and for tranſplanting, if required, in the ſame order: alſo occaſionally, by dividing or ſlipping the off-ſet ſhoots or ſuckers from the roots of old plants in the above ſeaſons, to obtain a preſent or quicker ſupply of leaves; and, in either of which, the ſpring-raiſed plants furniſh leaves for uſe the ſame year; and the plants continue ſeveral years by the roots, producing leaves and ſeed-ſtalks annually, in ſpring and ſummer, and ripe ſeed-umbels in autumn.

The varieties of fennel are,

Common ſweet fennel.

Dark-green-leaved fennel.

Both theſe varieties poſſeſs nearly equal properties for uſe; though the common green fennel is moſtly eſteemed for general ſervice.

They are hardy plants, that will thrive any where in a garden; and a ſmall bed of them ſhould be admitted in the herbary among the other aromatic plants, either raiſed from ſeed, or, for ſmall ſupplies, by root off-ſets, or a few old full plants, procured and planted to furniſh preſent leaves.

The plants are raiſed both by ſeed for the principal crop, or occaſionally, by ſlips of old roots, when wanted for immediate uſe. By ſeed, ſow it in February, March, or April; or in autumn, about Auguſt or

or September, to come up ſtronger in the ſpring, either in drills a foot aſunder, or broad-caſt and raked in; and the plants, when three or four inches high, either thinned a foot aſunder to remain, or tranſplanted that diſtance, and watered. And by ſlips, the old roots ſometimes emit ſide off-ſets, which, in ſpring, may be ſlipped off and planted as above, they will furniſh preſent ſupplies of leaves till the ſeedling plants are ready. Or large roots of fennel, in full plants, may be procured and planted for immediate uſe.

As the fennel ſhoots up to ſeed-ſtalks in ſummer, ſome of them ſhould be frequently cut down to obtain a ſucceſſion of young ſhoots and leaves from the bottom, all ſummer and autumn.

From the ſcattered ſelf-ſowed ſeeds, many young plants will riſe naturally in the ſpring.

But to ſave ſeed, permit ſome old plants to run in ſummer, they will furniſh plenty in autumn.

ENDIVE, *or* SUCCORY.

By the Botaniſts, Cichorium Endivia. *Succory or Endive.*

THE ENDIVE, conſiſting of ſeveral varieties, are all annual-biennial plants, of a bitter flavour; the leaves, when blanched, white, tender, and mild, are the parts uſed, principally to eat raw in ſallads, and for ſtewing, &c. their ſeaſon of perfection, autumn, winter, and ſpring; raiſed from ſeed ſowed annually in ſummer, in ſeveral crops, from May till July, all for tranſplanting a foot diſtance; and when at full growth, the leaves tied up to whiten; attaining perfection the ſame year, and ſome in winter and following ſpring; then they wholly ſhoot to ſeed; ripen it in autumn, and then wholly die.

The varieties of endive are,

Green curled endive *(for the main crops)*.
White curled endive.
Broad leaved Batavia endive *(of larger upright growth)*.

Theſe

These plants may be considered both as annuals and biennials; for those sowed before June run to seed and decay the same year; and those sowed in June and July continue without running till next spring.

Of the different varieties, the green curled sort is superior, both for its full growth, and hardiest to stand the winter; and should be raised in largest supplies for the main crops. The white curled sort may be raised in smaller portions for a few early plants, or as required for variety at table; and the Batavia endive growing large, more upright, with broader and almost plain leaves, is proper for autumn and beginning of winter; but not so hardy as the green curled endive to stand the frost in that season for a general crop, but is proper to raise tolerable full crops for autumn use, from August or September till November or December. Is in most estimation for stewing and soups.

These plants are all raised from seed every year, in three or four different crops sowed in May, June, July, and August, all for transplanting: some every month, from June till October or November; the summer and autumn planting, for autumn and winter supply, may be performed in any open compartments till October; then should be planted in warm dry situations, to stand principally for spring service.

First crop. For early summer endive, sow some of the white and green curled endive in the beginning or middle of May, in an open situation, moderately thin, and raked in evenly; and when the plants are an inch high, thin them to about three inches distance, to have room to grow stocky for transplanting; though, as the plants at this season of sowing soon go to seed, only a small crop should be raised.

Then in June, when the plants are three inches high, plant out a quantity in a compartment of rich ground, in an open situation, a foot distance, performing two or three different plantings at a week's interval, and each properly watered: and keep the whole clean from weeds by hoeing; and when the plants are advanced to a tolerable size, with full hearts, begin to tie up the leaves of the largest every week for blanching: but

obſerve, as probably ſome plants of this crop will run in their young growth, they ſhould be pulled up, and others planted to ſupply their places.

They will ſupply the table in the end of June and in July, and beginning of Auguſt, ſeldom longer, before they fly up to ſeed the ſame year, and become uſeleſs: having, however, others of the general crops advancing to ſucceed them in proper growth, as directed below.

For a general autumnal crop, ſow ſome the beginning of June; a larger ſupply the middle or towards the latter end of that month, each in an open compartment as above, and the plants, where too thick, thinned two or three inches diſtance, to grow ſtrong, of from three or four to five or ſix inches high, for tranſplanting; and of which different ſowings ſhould, in June, July, and Auguſt, plant out ſome every week or fortnight, particularly when there is an opportunity of ſhowery weather, taking the ſtrongeſt plants; prune the tops of the long leaves and ends of the roots; and having digged a compartment of rich ground in an open ſituation, plant the endive in rows, a foot or fifteen inches diſtance each way, and watered: or, if very dry weather, may plant them now in ſmall ſhallow drills, the above diſtance, to retain the moiſture longer.

According as the plants of the different crops advance to a large full growth, with a large ſpreading head of leaves, full in the heart, tie up the leaves of ſome every week for blanching, performed with baſs or ſlender oſier twigs, gathering up the leaves of each plant moderately cloſe, and tie them together a little above the middle.

They will be blanched white, criſp, and mild, in a week or fortnight after tying; and the different plantings will ſupply the table from Auguſt till September and October, &c.

And for late autumn and main winter and ſpring crops, ſow, the beginning and latter end of July, a full ſupply of green curled endive, a ſmaller quantity of the white and broad leaved kinds; and ſow alſo ſome green curled the beginning of Auguſt, for late planting: obſerve, of the July ſowing to plant out full crops in Auguſt

guſt and September, to ſupply the table from September till December or January or February, ſetting them a foot or fifteen inches diſtance, as above; and of the Auguſt ſowing plant ſome in September and October, or beginning of November, for ſpring endive, in warm dry ſituations, particularly the lateſt crops, which plant in dry ſouth borders, where not liable to rot in winter. And according as the plants of the different crops attain full growth, take opportunity of dry days, and tie up ſome every week or fortnight for blanching.

In planting out endive, if neceſſary to crop all parts of the kitchen ground to the moſt advantage, ſome may be planted along the ridges or intervals, between trenches of new planted celery, or occaſionally between tranſplanted rows of advanced crops of Cos lettuce, a row of endive in every other interval; the ſame between rows of tranſplanted leeks, or in vacant wide alleys, between beds of ſmall plants; alſo along any vacant edges of beds or borders, &c.

Obſerve, in all the different crops, according as the plants advance to a large full growth, in autumn and winter, to continue tying up a parcel every week or fortnight, as before intimated; always performing it in dry weather, and when the plants are alſo quite dry: and in winter take opportunity of the mildeſt open weather, and fineſt dry days, for this work; otherwiſe will rot in the heart.

Sometimes endive is blanched by placing flat tiles or boards on the plants, without tying up the leaves, but placed flat as they remain in their ſpreading growth, particularly the two ſorts of curled endive; but is not applicable in the upright or Batavia kind; though in neither of the ſorts is this ſo eligible as tying up the leaves of the plants.

Or ſometimes, in winter, endive is blanched by taking up a quantity, and plunged horizontally, almoſt to their top, in the ſides of ridges of dry earth, eſpecially when appearance of ſevere froſt, or, in caſe of very wet ground, the plants liable to rot. Where this may be intended, dig up a parcel of full grown plants, in dry open weather, with their full roots; and if any moiſture

lodge between the leaves, lay them head downward in ſome dry place to drain off the wet; then in a dry ſituation, forming one or more high ſharp ridges of light dry earth, and in the ſides of which to depoſit the endive, gathering the leaves cloſe, plunge them horizontally, near together, into the earth, almoſt to their tops; they will thus blanch more ſecurely from the power of ſevere froſt, and redundant moiſture of the full ground, and exceſſive falling wet; obſerving to cover the ridges in rigorous froſts with long litter. Alſo in the ſame ſeaſon, a quantity of light dry earth being laid in a ridge in a deep garden-frame, longways, may plunge a parcel of endive therein, and put on the glaſſes to defend them from exceſſive rain, ſnow, and froſt: likewiſe, in winter, a ridge or round heap of earth, formed in any covered ſhed, may alſo plunge a quantity of endive into the ſides; and, in ſevere froſt, cover thick with ſtraw litter or mats: in all of which methods, ſome endive may be conveniently blanched or whitened in winter, as required, on the above mentioned occaſions.

To ſave endive ſeed, either leave a quantity of the early plants of the year to ſeed the ſame ſeaſon, or of the main autumn or winter crops leave a neceſſary ſupply in the ſpring, or at that ſeaſon, about February, tranſplant ſome in rows two feet aſunder, and watered; they will all ſhoot up into ſtrong branchy ſtems in ſummer, and produce plenty of ſeed in Auguſt or September.

GARLICK;

By the Botaniſts Allium (Allium *ſativum*); *cultivated Garlick.*

GARLICK is a bulbous-rooted perennial plant, producing a large white bulbous root, compoſed of many ſmaller bulbs, or cloves, of a ſtrong taſte and ſavour, and is the uſeful eatable part of the plant, employed in various culinary diſhes, and very ſalutiferous

to

to uſe by way of medicine on many occaſions, and very uſeful to have in a family; obtained for uſe in its full growth in ſummer and autumn, and to dry for keeping all the year; is raiſed by off-ſets or ſeparated cloves of the root, planted, one moderate crop annually in the ſpring, ſix or eight inches diſtance; attain maturity in June, July, or Auguſt, when being taken up and dried, keeps ſound till ſpring or ſummer following; and is perpetuated from year to year by its off-ſets, in a perennial ſtate.

There is but one ſpecies, viz.

Cultivated or common garlick.

This plant, from its ſtrong ſcent and ſavour, is by many diſeſteemed: it however deſerves cultivation in every kitchen-garden, both for various culinary occaſions, and valuable as a domeſtic medicine in many caſes; is a hardy plant, will thrive in any moderately light ſoil and open ſituation: one crop annually.

It is propagated or raiſed by planting the cloves or ſeparated ſmall bulbs of the main root in February or March, but not later than the middle of April: having ſome large bulbs, divide them into ſeparate cloves, and preparing one, two, or more beds, four feet and half wide, and in which plant the cloves either with a dibble in rows, nine inches aſunder by ſix in the row, and two or three inches deep; or, drawing drills with an hoe the ſame diſtance, place the ſets in the drills, and cover them in with earth. When the plants come up, keep them clean from weeds, which is all they require during their growth.

In June the bulbs will be grown to a moderate ſize; when, if any are required for preſent uſe, ſome may be taken up occaſionally as wanted.

But generally let the main ſupply grow till the middle or end of July, or till the leaves begin to decay, which indicates the roots are of full growth, then pull them wholly up, ſpread to dry, and then cleaned, tied in bunches, and hung up in ſome dry apartment: they will keep ſound till next year.

HYSSOP;

By the Botaniſts, Hyſſopus (Hyſſopus officinalis, *or officinal Hyſſop*).

HYSSOP is a ſmall underſhrubby evergreen aromatic plant, durable in root and branches, furniſhed with ſmall narrow leaves all the year, and of which the young tops and leaves together are the parts uſed, ſometimes as pot herbs, or more generally for medical purpoſes; and being an evergreen, is obtained for uſe at all ſeaſons; or ſome alſo, when in flower, gathered to dry for keeping till winter, if required; is raiſed both from ſeed in the ſpring, one ſmall crop for tranſplanting a foot aſunder, and by ſlips of the young branches, and parting the roots and tops together in ſpring, ſummer, and autumn. Will moſtly acquire a proper growth for uſe the ſame year; and the ſame plants continue of ſeveral years duration, furniſhed with young ſhoots and leaves for uſe the year round.

The varieties of hyſſop are,

Officinal or common hyſſop, blue flowered.

Officinal red flowered hyſſop.

Both theſe varieties are equally eligible to cultivate for uſe; and are very neceſſary herbs to admit in every kitchen-garden: one ſmall or moderate crop, for the ſupply of a family, or larger for market ſupply, ſowed or planted in beds or borders, in rows a foot diſtance, or ſome raiſed in an edging; and the ſame plants will abide ſeveral years.

They are raiſed both from ſeed in the ſpring, and by ſlips of the young ſhoots, and parting the roots in ſpring, ſummer, or autumn; or a few full plants for preſent ſupply may be had at the nurſeries, to plant till your own raiſing are of a proper growth.

To raiſe them by ſeed, ſow it in March or April, in a bed or border of light good earth, either on the ſurface and raked in evenly, or in ſhallow drills ſix inches aſunder; and in ſummer, about June, July, or Auguſt, when

when the plants are two or three inches high, tranſplant them a foot or eighteen inches diſtance, and watered; or ſome may be ſowed or planted to form an edging to particular beds or borders in the herbary, ſet ſix inches aſunder.

Or by ſlips of the young ſhoots they will grow freely, performed in March, April, May, or occaſionally in June or July; ſlipping or cutting off a quantity of the ſtrongeſt young ſhoots five or ſix inches long, plant them in a ſhady border ſix inches diſtance, giving neceſſary waterings; they will take root and make good plants by autumn; then, or next ſpring, may be tranſplanted where they are to remain.

Likewiſe old plants, branching from the bottom, and rooting in the earth, may be ſlipped or parted into ſeparate rooted ſlips in ſpring or autumn, and planted where they are to continue.

To gather hyſſop for uſe, ſlip or cut the young ſide or top ſhoots and leaves together, as occaſionally wanted any time of the year; or in ſummer, about July, when in flower in the fulleſt ſtate of perfection, a quantity may be gathered, the tops and flower-ſpikes together, both for any preſent principal uſe, and to dry and tie in bunches to houſe for winter.

As to culture of the plants, keep them clean from weeds; and as they will ſhoot up many flower-ſpikes in ſummer, theſe ſhould be cut down in autumn cloſe to the branches, and then, or in ſpring, dig between the plants with a ſmall ſpade or trowel; and after two or three years growth or more, if the plants appear of a decaying ſtate, make a new plantation.

To ſave hyſſop ſeed, permit the flower-ſpikes to run, they will furniſh plenty in autumn.

KIDNEY-BEANS.

In the Botanic ſyſtem, Phaſeolus.

THE KIDNEY-BEAN, in ſome places called French Bean, conſiſts of many varieties, of dwarf kinds and runners, are all tender annual plants, very profitable ſummer crops for their young green ſeed pods to boil, for uſe in June, July, Auguſt, till October; or by hot-beds and hot-houſes are alſo obtained early in the ſpring; and in ſome ſorts the ripe ſeed or beans are boiled and eaten in winter with butter. Raiſed annually from ſeed ſowed in ſeveral crops, from March or April till the end of July, as one crop continues but two or three weeks in good production; each crop ripening ſeed the ſame year, and then wholly decay.

The varieties of Kidney-beans are,

1. Dwarf kinds, growing low and buſhy.
   - Early white dwarf.
   - Early liver-coloured.
   - Early black dwarf.
   - Early ſpeckled dwarf.
   - Early dun-coloured.
   - Early coggerſhall dwarf.
   - Large black ſpeckled dwarf.
   - Red ſpeckled dwarf.
   - Batterſea white dwarf (low growing).
   - Canterbury white dwarf (low).
   - Large negro dwarf.
   - Large white dwarf.
   - Dun-coloured dwarf.
   - Chineſe ſpeckled dwarf.
   - Zebra or ſtriped dwarf.
2. Runner kinds; growing with long, ſlender, twining, running ſtalks.
   - Scarlet runner; large, rough, fleſhy pods; excellent eating while young.
   - Dwarf ſcarlet runner.

Large

Large white runner; a variety of the ſcarlet ſort; the flowers and ſeed white, but the pods large, rough, and fleſhy, ſimilar to the ſcarlet.

Dutch white runner; very long, thin, fleſhy pods; very fine when young.

Batterſea runner.

Negro runner.

Barbary runner.

The above diſtinction of colours in the different varieties, alludes principally to the ſeed; except the ſcarlet ſort, from the ſcarlet colour of the flower, though the ſeed alſo partakes of that colour.

Reſpecting the merit of the two tribes of kidney-beans, dwarfs and runners; the former are beſt for the main crops for general ſupply, eſpecially where conſiderable crops are required, as they do not require the trouble of ſticks, as in the running kinds; beſides, the pods, for the general part, are eſteemed preferable for eating; and the runners, in their nature of growth in long, twining, climbing ſtalks, of many feet length, require ſticks or poles, &c. for them to aſcend upon in a ſpiral or twining order; would in conſiderable crops require great trouble in furniſhing them with ſupport for climbing; they however are very deſerving of culture, particularly in family gardens, in moderate crops, as their pods, gathered while young and fleſhy, boil tender, green, and good to eat; and ſome ſorts are remarkable for long bearing, particularly the ſcarlet, and the large white runners, both of which will continue in production from July or Auguſt till September or October.

Of the different varieties, any of the ſorts may be cultivated, but the beſt for general culture are, of the dwarfs, any of the early kinds for the firſt crops; but as theſe continue but a ſhort time in bearing, are not proper to raiſe in large quantities: and for the general crops of dwarfs, the Batterſea, Canterbury, and ſpeckled dwarfs, are excellent bearers, and fine eating beans while young; though the market gardeners about London generally raiſe moſtly the Batterſea and Canterbury

dwarfs, as being low growers, quick and very great bearers, with ſmall pods more ſaleable in market; however any of the other ſorts are proper to ſow occaſionally to encreaſe the variety at table or for market: and of the runners, the ſcarlets and white are very eligible for the main crops, for their long bearing, and fine eating pods while young; next to theſe the Dutch runners are very proper, are great bearers, and fine tender eating beans even when large, but do not continue long in ſucceſſional bearing; are however very deſerving of culture for a full crop of runners, are generally ſowed in two crops, at a month's interval, to have a longer ſucceſſion; any of the other runners may be raiſed in ſmaller crops, or as required.

Kidney beans in general are tender, both in the ſeed and plants; the former, being very impatient of wet and cold, ſeldom ſucceed well if ſowed in the natural ground before April, being apt to rot if the ground is wet or much rain fall; and the plants that come up early before May are very liable to ſuffer, or ſometimes cut off in cold nights.

They grow moſt ſucceſsfully in a moderately light, mellow ground, but will alſo ſucceed in any common lightiſh ſoil of a garden or field; but in wet, harſh ſoils, the ſeed is apt to rot, eſpecially the ſowings before May or June.

All the ſorts are raiſed from ſeed annually, in ſeveral crops, by ſowing every month from the end of March or beginning or middle of April, according to the temperature of the ſeaſon, to the end of July or beginning of Auguſt; for as one crop continues but two or three weeks in production, a ſucceſſion of different crops is neceſſary, eſpecially of the dwarfs, in order to have a regular ſucceſſion of young beans during the ſeaſon, June, July, Auguſt, and September; but, as before obſerved, the ſeed and plants being tender, ſhould ſow only moderate crops before May; but in which month, June, and beginning or middle of July, is the ſeaſon for ſowing the great crops, for principal bearing July, Auguſt, and September; and by ſowing ſmaller portions the latter end of July, or beginning of Auguſt, will

continue a ſucceſſional production till October. But in the runners, the ſcarlet and large white kinds, ſowed in one or two crops May and June, will furniſh a conſtant ſupply from Auguſt till October or November; the other runner ſorts may be ſowed in the ſame ſeaſon, but will not continue ſo long in bearing.

But kidney-beans may alſo be obtained early, by ſowing in hot-beds and hot-houſes, in January, February, and March, of the early dwarf kinds, in ſmall ſupplies, to produce in March, April, May, and beginning of June, till the natural ground early crops come into bearing.

They are always ſowed in drills, from two feet to a yard and four feet diſtance, and all to remain where ſowed.

As kidney-beans conſiſt of dwarfs and runners, requiring ſome little difference in ſome part of their culture, we ſhall give them under ſeparate heads.

Dwarf Kinds.

Theſe ſorts are proper for the general early and principal main crops, agreeable to the foregoing intimations, to ſow in different crops every month from March or April to Auguſt, to bear from June till October; but if young kidney-beans are required in the earlieſt production, they may be obtained both by ſowing in warm borders, and in beds of natural earth defended with frames, as alſo more early by means of hot-beds, hot-houſes, forcing-houſes, &c. But firſt ſhall proceed in the directions for the early and general natural ground crops.

Early and general natural Ground Crops.

For early natural ground crops of kidney-beans, a few may be ſowed the beginning or middle of April, of the early dwarf ſorts, in a warm border of light dry earth, under a ſouth wall; but unleſs the weather is ſettled, moderately dry and warm, and the ſoil of a light dry temperature, the middle of April is time enough for any conſiderable firſt crop; as if wet ſoils or much rain, the ſeed-beans, naturally tender, would rot in the ground; however, if tolerably favourable weather, a ſmall portion may be ſowed the end of March or be-

ginning of April; a larger crop the middle and latter end of the laſt-mentioned month.

The firſt ſowing, beginning or middle of April, perform in a warm border, drawing drills two feet and half diſtance, only an inch deep now; or draw a drill alſo lengthways, cloſe to the wall to be warmer and drier; place the beans in the drills only an inch or two aſunder this early ſowing, as many may fail, and cover them in evenly with the earth not above an inch deep; as if deeper, they will be apt to rot or not riſe freely, eſpecially if cold or much rain happen: when the plants are up and advanced in growth, keep them clean from weeds by hoeing between the rows, at the ſame time draw ſome earth to the ſtems, and if very dry warm weather, in May give occaſional moderate waterings; this crop will come into bearing in June or beginning of July.

In a week or fortnight after ſowing the above firſt natural ground crop, ſow a few more, both in caſe the others ſhould fail, and if they ſucceed, to have a longer ſucceſſion in bearing, eſpecially as the early beans continue but a ſhort time in production.

After ſowing theſe early crops, examine the ſeed occaſionally, eſpecially if cold or wet weather occur ſoon after ſowing, to ſee if the beans either remain ſound, or the greater part is rotting, as is often the caſe in an unfavourable ſeaſon; and in which latter inſtance loſe no time, but directly ſow more, either between the former rows, or in another compartment of ground.

Or in dry warm weather, after the beans have ſprouted, give a light watering, of a warm forenoon, to aſſiſt them in coming up freely; after which, in their advancing young growth, if a dry warm ſeaſon, it will be of advantage to refreſh them frequently with moderate waterings in a morning or forenoon.

Likewiſe obſerve in theſe crops, that when the beans are come up an inch or two high, hoe the ground between them, and draw a little earth to the ſtems of the young plants, and which, in their more advanced ſtate, repeat once or twice, to ſtrengthen and forward their growth; obſerving, in each hoeing, to cut down all weeds.

Theſe early crops will come into bearing in June and beginning of July, when generally gather the pods while moderately young, both to have them in beſt perfection for eating, and the plants will continue longer in bearing; though theſe early kinds do not at any rate continue long in production.

Or for a few early border kidney-beans, ſome ſeed may be ſowed thick in a hot-bed, the beginning, middle, or any time in April, for tranſplanting; or ſome ſowed thick in one or more large pots placed in a hot-bed; and when the plants come up, harden them by degrees to the full air, till the end of April or beginning of May, when warm ſettled weather; then planted out into a warm border, or ſome cloſe to the wall for better protection from cold weather, or covered in cold nights with mats; or ſome being ſowed in ſmall pots, three beans in each, the pots placed cloſe together in a hot-bed, and the plants when advanced with leaves an inch or two broad, and ſettled weather, as above, may be turned out of the pots with the ball of earth entire, and planted in clumps cloſe under a warm wall, and in cold nights defended with mats, or garden pots whelmed over each clump of plants; or alſo occaſionally, in an unfavourable ſeaſon, ſome may be ſowed thick in a hot-bed, or in pots placed therein, juſt to ſprout the beans, then taken up carefully and planted in drills under a warm ſouth wall, or in a frame under glaſſes.

About the middle and toward the latter end of April, ſow a larger ſupply, ſome in warm borders and the warmeſt quarters of dry light ground; but towards the end of April, ſow ſtill more conſiderably in any of the main quarters, borders, or other compartments, principally of the Batterſea, and Canterbury white dwarf, or alſo of the ſpeckled dwarfs, being all good bearers, and continue longer than the early ſorts in bearing; the two former ſow in drills two feet and half, and the ſpeckled dwarf generally a yard aſunder, as being of largeſt growth: placing the beans two or three inches diſtance in the drills, covering in with the earth about an inch or not more than an inch and half deep; keep the plants clean from weeds by occaſional hoeing,

and

and draw earth to the ſtems once or twice; they will bear in July and Auguſt.

For the main crops ſow in May, June, and July, largely once or twice in each month, of the Batterſea, Canterbury, and ſpeckled dwarfs, for the principal ſupply; and any of the other dwarf ſorts, except the early kinds, for ſecondary crops, or to furniſh a variety of different ſorts; and for all of which draw drills from two feet and a half to a yard diſtance, and an inch and half deep, ſowing the beans three inches aſunder, and covered in the above depth: theſe crops will bear ſome in July, but plentifully in Auguſt and September.

Likewiſe in the end of July or beginning of Auguſt, ſow a ſmaller crop for late bearing in September and October.

In the ſummer ſowings, in June, July, &c. if very dry hot weather, it is adviſeable either to ſoak the beans a few hours in river or pond water, or when the drills are drawn, water the drills, then ſow the beans, and earth them over directly; this will promote their germinating ſooner, and coming up more regularly together, which otherwiſe in dry hot ſeaſons will riſe very ſtragglingly, and ſome not at all.

As to culture of the above different early and main crops, all they require is to keep the plants clear from weeds, by occaſional hoeings in dry weather, and in their advancing young ſtate to hoe a little earth up to the ſtems once or twice, to forward and ſtrengthen their growth.

Theſe different crops will afford a regular ſupply of young pods, for gathering in full ſupplies, from about the beginning of July till October; obſerving in gathering kidney-beans for uſe, go over each crop about twice or thrice a week, while the pods remain young, green, and criſp, before they form the beans of any conſiderable growth, as they will in that ſtate boil more green and tender to eat, and the plants, when thus cloſe gathered in the young growth of the pods, will continue flowering longer in ſucceſſion, and furniſh more abundant crops of longer continuance accordingly.

Where

Where kidney-beans of the above crops are required for pickling, they ſhould generally be alſo gathered in a young ſtate; rather more ſo than thoſe for boiling; or to pickle down in ſalt for winter, they may be gathered of the common ſize, and in which they are very fine to boil in that ſeaſon.

Early crops by ſowing in hot-beds and hot-houſes, &c.

To have forward kidney-beans in the earlieſt period by hot-beds and hot-houſes, &c. to bear in March, April, and May, &c. obſerve as follows:

By hot-beds.—For early kidney-beans, having ſome early white dwarf ſeed, begin in January or February to make either a ſmall hot-bed, to raiſe the plants about a week or fortnight's growth, for tranſplanting into a larger; or ſow at once in a large hot-bed, for one or more three-light frames, to remain. If the former, make a hot-bed for a one or two-light frame, and earthed at top with light dry mould ſix inches thick; ſow the beans thick in drills for tranſplanting, or ſow ſome alſo in ſmall pots, four in each, placed in the ſame bed; put on the glaſſes, and occaſionally give vent to the ſteam from the bed; defend the glaſſes at top every night with mats or ſtraw litter, and when the beans have ſprouted (not before), as alſo after they come up, give occaſional very moderate waterings, as the earth becomes dry; likewiſe admit air to the plants daily, in temperate weather, by tilting the glaſs an inch or two at the upper end, and when they puſh their ſecond or rough leaves about an inch broad, having a ſtrong hot-bed made in due time near a yard high, for one, two, or more three-light frames, and the burning heat is over, earth it ſix or eight inches thick, then tranſplant the beans therein, with earth to the roots, in croſs rows fifteen inches aſunder; or thoſe in pots may be tranſplanted with the balls of earth about their roots entire, and planted in clumps as they were raiſed in the pots: give a little water, and in their future culture give air, by tilting the lights behind as above; cover the glaſſes every evening, and uncover in the morning, ſupplying the plants with light waterings, and ſupport the heat of

the bed, when declined, by linings of hot dung to the ſides.

They will thus come into bearing in March or April, though generally but in very moderate production at that early ſeaſon.

But, to have a regular ſucceſſion, ſhould make a hot-bed, and plant it with early beans as above, every three weeks, from January or February till April, and they will furniſh ſmall crops for gathering in the ſpring, until the early natural ground crops arrive to bearing in June.

Or in want of frames and glaſſes, a hot-bed made the middle or end of February, or in March or April, ſowed or planted as above, and arched over with hoops to be covered with mats every night and in cold weather, will produce in April and May, &c.

In hot-houſes, or fruit-forcing houſes.—May raiſe early kidney beans with greater certainty, abundance, and perfection, and with much leſs trouble, than in hot-beds. Having for this either ſome early white, black, or dun-coloured dwarfs, or ſpeckled dwarfs will alſo ſucceed and bear plentifully; and in January, February, &c. being furniſhed with ſome large garden pots, or oblong narrow boxes, filled with light rich earth, placed in the hot-houſe either on the top of the bark-bed wall, or front flue towards the glaſſes, or ſome placed in a fruit-forcing houſe; and if pots, plant four or five beans in each, an inch deep; or in boxes, plant a row lengthways along the middle, three inches aſunder: if after planting the earth dries faſt, give a little water, but when the beans have ſpeared and begin to ſhoot, water more freely to promote and aſſiſt their coming up regularly, after which give light waterings two or three times a week.

They with the above care will grow freely, and produce ſome in February, but more plentifully in March and April, &c.

To continue a ſucceſſion, plant more in a fortnight or three weeks in ſmall pots, three or four beans in each, and placed cloſe together in any part of the hot-houſe or forcing-houſe, where moſt convenient for room, and there

there to be advancing in ſucceſſion to the others; and when of two or three inches growth at top, tranſplant them with the balls of earth to the roots into large pots or boxes, to remain; giving water at planting and in their advancing growth: and thus may have them advancing one crop under another, for conſtant ſucceſſion of early beans all the ſpring months till June.

Thus far concluding the general directions for raiſing the dwarf kidney-beans, both in natural crops, and by forcing in hot-beds or hot-houſes, where required in the earlieſt production; next follows the culture of the runners.

Crops of Runners.

The runner kidney-beans having all long, twining, climbing ſtalks, that aſcend in a volubilate manner round poles, ſticks, ſtrings, &c. many feet high, and will not ſucceed well in their production without the aſſiſtance of ſuch ſupports, ſo muſt prepare for their culture accordingly.

Of the runner kidney-beans, the ſcarlets and the large whites have this ſuperiority, in being the greateſt bearers, and continue conſiderably longeſt in bearing, ſometimes two or three months in the ſame plants, or two crops, ſowed in May and June or July, will continue bearing from July and Auguſt till November, if a favourable autumn, and are very good eating beans while young and fleſhy; though it is eligible to ſow ſome of the others, to have a plentiful variety in ſucceſſional production: but the runners in general are more eligible to cultivate in private gardens, where only moderate ſupplies are wanted, than in large quantities in market-gardens, and fields, &c. on account of the great trouble they would require in ſticking or poleing them for ſupport to climb upon, in their natural twining order.

The ſeaſon for ſowing theſe ſorts is principally May, June, and July, obſerving the following hints:

To have ſucceſsful crops of runners, the beginning or middle of May is a good ſeaſon to ſow the firſt main ſupply; though if warm dry ſettled weather, ſome may be ſowed the middle or end of April, in a warm, dry border;

border; but if at that time the weather is cold, or much rain, better defer the principal ſowing till May, as the beans will not be ſo liable to periſh by cold and wet, as when ſowed earlier.

And for ſucceſſion beans, it is proper in June, the beginning, middle, or any time in that month, to ſow another good crop of the ſame kinds, which, of the ſcarlet and large white runners, will continue in production to the end of October; but of the Dutch and other runner kinds mentioned after that ſort, may alſo ſow more in July to continue a proper ſucceſſion, as none of theſe bear ſo long as the ſcarlet and large white beans.

They may all be ſowed both in open compartments of light ground, in wide rows four feet diſtance, to have tall ſticks or poles ſix or ſeven to eight or ten feet high to aſcend upon; or in borders near walls, palings, rails, hedges, trees, &c. either to have poles placed in the ground, or ſtrong packthread ſtrings ſuſpended from above, for them to twine round in their running aſcending order, or to twine round the ſtems of ſmall trees, eſpecially the ſcarlet kinds; likewiſe, occaſionally, the ſcarlet and large white runners may be ſowed, to form ſhady walks, bowers, &c. by poles, rods, lines, or to run over arbours, &c. or in places not accommodated with gardens, theſe two ſorts may be ſowed in pots or boxes, and placed in the outſide of windows, or in balconies, court-yards, &c. placing poles or lines on which to aſcend.

For a full crop of runners, draw drills four feet aſunder, and an inch and half deep; or double drills, that is, two drills together a foot aſunder; and allow a ſpace of four feet and half or five feet between each two rows, eſpecially the ſcarlets and large white runners, that they may have full ſcope for a free growth as they require, and to admit of proper room between the rows for gathering the produce without breaking down the plants; place the beans in the drills three inches aſunder, though rather too cloſe, but ſome may rot if much rain falls.

When the plants of the different crops are come up two or three inches high, hoe ſome earth up to the ſtems of them,

them, and cut down all weeds; repeating the hoeing once or twice, according as weeds advance.

And when the plants puſh forth runners, being furniſhed with tall ſticks or poles, place them in the ground upright in a range along each row for the runners to climb upon, or, occaſionally, where near walls, palings, rails, trees, &c. ſuſpend lines from above, as formerly hinted; and in all of which, conduct the runners of the plants thereto in their firſt advance, directing them in their natural volubilate courſe, contrary to the ſun's apparent diurnal motion; they will afterwards aſcend rapidly without further trouble, and bear at every joint as they mount in height.

In their bearing ſtate, generally gather the pods while moderately young, before the beans are conſiderably formed in them; they will then boil green, tender, and good, and by cloſe gathering before they grow old, the plants will bloſſom and bear longer accordingly in proper ſucceſſion.

Saving Seed of Kidney-Beans.

To ſave ſeed of kidney-beans, both of the dwarfs and runners, if for large quantities, ſhould ſow ſome for that purpoſe the latter end of April, or in May, leaving them wholly ungathered to ripen in Auguſt, &c. or for ſmaller ſupplies, either leave ſome rows of the firſt main crops, or where any produce more than can be gathered before too old, let the ſuperabundancy remain for full growth; they will all ripen in Auguſt and September, when either pull up the ſtalks and beans together where conſiderable quantities; or in ſmaller, pick off the ripe pods, eſpecially the large runners; and after being expoſed in the ſun and air to dry, threſh, beat, or ſhell out the ſeed.

The ſeed beans always grow moſt freely when but one year old, though thoſe of two years will alſo grow; however have, if poſſible, new ſeed for general ſowing.

JERUSALEM

JERUSALEM ARTICHOKE.

In the Botanic Syſtem, a ſpecies of Helianthus, *or* Sun-flower (Helianthus tuberoſus); Tuberous-rooted Helianthus, *called* Jeruſalem Artichoke.

THE JERUSALEM ARTICHOKE is a hardy tuberous-rooted perennial plant, a ſpecies of the family of Helianthus or Sun-flower, growing with a cluſter of large, irregular, tuberous, fleſhy roots, which are the eatable parts; in beſt perfection in autumn and winter, till the ſpring; ſhoots up tall ſingle ſtems annually in the ſpring, ſeveral feet high, furniſhed with large broad leaves, and crowned by a ſmalliſh, radiated, yellow, compound flower: is raiſed by cuttings of the roots, or whole; planted in the ſpring, one crop annually, in rows a yard diſtance; and the roots attain perfection the ſame year, about September or October, continuing good all winter till April or May, then begin to ſprout, waſte, and decay.

There is only one ſpecies, viz.

Helianthus tuberoſus, or tuberous-rooted ſun-flower, commonly called Jeruſalem artichoke.

This is a moſt hardy and durable plant in the root, which will grow in almoſt any ſoil and ſituation, and multiply ſo faſt, as when once planted they can hardly be entirely eradicated, for the ſmalleſt bit of the root remaining, will grow and continue coming up annually.

This plant, though called an artichoke, bears not the leaſt reſemblance to the common artichoke, being very diſſimilar in growth; and whence it derives the name is unknown, unleſs it be from ſome reſemblance in taſte to that of the latter.

It is raiſed or propagated by cuttings of the tubers or roots, or the roots whole, planted in February or March; and each ſet will be productive of a large cluſter of fleſhy tubers at full growth, to dig up for uſe in September, October, &c.

As

As before obſerved, this plant will grow any where; however, to have them produce large fine roots, generally allot an open ſituation, and tolerably rich moderately light ground, and digged one full ſpade deep; and at the proper ſeaſon as above, February or March, but not later than the beginning or middle of April, having ſome largiſh roots, cut them into ſeveral pieces, each furniſhed with an eye or bud, plant them either by dibble or in deep drills drawn with the corner of an hoe, in rows a yard aſunder, by eighteen inches in the lines, and three or four inches deep.

When the plants come up, hoe the ground occaſionally to eradicate weeds; and when they are a little advanced in growth, hoe up ſome earth to the bottom of the ſtems on both ſides of each row, to encourage the production of plentiful roots below, and their growing large.

They will be at full growth in root and top about Michaelmas, or ſoon after, and the ſtalks will decay in October, when you may begin to dig up the roots for uſe, and continued all winter as wanted: or in November dig up a quantity, and lay them in ſand under cover, to preſerve them for ready uſe during the winter ſeaſon; and any remaining in the ground till ſpring may be digged up in February before they ſhoot; laid in ſand or a little dry earth, they will keep longer good for uſe in that ſeaſon.

HORSE-RADISH;

By the Botaniſts, Cochlearia Armoracia, (Armoracia) *or Horſe-Radiſh.*

THE HORSE-RADISH is a hardy perennial plant, with a long thick perpendicular white root, the eatable part; eſteemed for its warm agreeable reliſh and wholeſome quality; is always eaten raw, previouſly ſcraped into fine ſhreds, and uſed as ſauce to roaſt, broiled, and fried fleſh, and occaſionally to fiſh, and for garniſh to diſhes, &c. obtained at moſt ſeaſons of the year, but

but in the greateſt perfection in autumn, winter, and ſpring, from October to April or May: raiſed always by off-ſets and cuttings of the roots in the ſpring; planted in rows two feet aſunder by a foot diſtance in the lines, and fifteen inches deep, to obtain long ſtraight root-ſhoots, of proportionable length, which ſhoot up in full length the ſame year in May or June, acquire a moderate growth to dig up for occaſional uſe the following autumn and winter, but in fulleſt perfection in ſize, &c. the ſecond year, by September or October; when, and during the winter and ſpring, in digging up the roots for uſe as wanted, they being cut off to the bottom, leaving the ſtools, they ſhoot up again in ſucceſſional production.

There is but one ſpecies, viz.

Armoracia, or horſe-radiſh.

This plant will grow almoſt any where in common garden earth; but to obtain large fine roots in beſt perfection, it ſhould have a lightiſh mellow ſoil, and open ſituation, well trenched, two ſpades deep; and of which, for the ſervice of a family, ſhould plant a good moderate crop, or according to the extent of the kitchen-ground, or family demand; or the ſame proportion in market gardens for public ſupply; and in all of which one crop will be of ſeveral years continuance, as after the firſt or ſecond ſummer's growth, the root-ſhoots being then of proper ſize to be digged up for uſe in autumn, winter, and ſpring, &c. cutting them off level to the bottoms or parent ſtool; and this remaining in the ground continues ſending up freſh ſupplies the following and for ſeveral years to come, in annual production; or may be ſucceeded by a new plantation once in three or four to five or ſix years or more, as it may ſeem neceſſary, according to the produce of the old plants in the ſize and goodneſs of the ſhoots.

The propagation or way of raiſing horſe-radiſh is always by top cuttings of the ſide off-ſet root-ſuckers, and occaſionally the top of the main roots, or ſometimes old knotty roots cut into ſeveral pieces, an inch or two long; and all which ſets for planting may be collected any time from autumn till ſpring, in digging up the

the full-ſized roots for uſe as occaſionally wanted; and generally planted in February or March.

For this purpoſe of planting, provide a proper ſupply of ſets any time from October to March; and for which obſerve generally in digging up the full-ſized roots, in old plantations, for uſe, to detach all the ſmall off-ſet ſhoots and ſide-ſuckers, ſelecting a quantity of the beſt for ſets, the top part cut off about two inches long; or likewiſe occaſionally of the main roots when digged up, if not a ſufficiency of the others: this, however, in the main roots, though it may be done without inconvenience in private gardens, is not eligible in market grounds, as the loſs of the top parts would render the roots unſaleable: or alſo, in default of off-ſets, a quantity of old knotty roots, cut into pieces two inches long, may be uſed for ſets; but the cuttings of the ſtraight ſide off-ſet ſhoots, ariſing from the bottom or ſides of the main roots aforeſaid, are preferable; chuſing the moderately ſtrong ones, and cut off the top part for planting, two to three inches long, with the top attached to each ſet: however, as before obſerved, that in want of plenty of theſe, make good the deficiency with the others, as above.

Then being furniſhed with a proper ſupply of ſets, and allotting an open compartment of ground, trench-digged one full ſpade, or two ſpades deep; and being provided with a long dibble, plant the ſets therewith in rows two feet aſunder, by twelve to fifteen inches diſtance in each row, inſerting them at leaſt a foot or fifteen inches deep, that they may ſend up long ſtraight clean ſhoots accordingly; obſerving to cover in the holes over each ſet with earth as you proceed in planting.

Or horſe-radiſh may be planted in the trenches as you proceed in trenching or digging the ground; digging out a firſt trench two feet wide, and fifteen inches deep, looſening the bottom, and along the middle of which plant a row of ſets, thruſting them a little into the earth; then digging the next trench, turn the earth into the firſt upon the cuttings, breaking the large lumps and clods, that the root-ſhoots may advance freely in a ſtraight upright growth; and in this manner proceed in planting

planting as many rows as required, filling up the laſt trench with the earth of the firſt opening.

On the ground where the horſe-radiſh is planted, as it will not come up before May, as having a conſiderable depth of earth to ſhoot through to the ſurface, there may be ſowed a crop of radiſhes or ſpinach, or ſpinach and radiſhes together, which will attain full growth, and come off time enough for the horſe-radiſh to advance without any material interruption.

The plants will come up in May, ſeldom before, eſpecially the firſt year; for, as above obſerved, the ſets being planted deep, the ſhoots having a conſiderable body of earth to puſh through before they reach the ſurface, then the tops advance with large leaves; at which time all the culture they require is to keep them clean from weeds all ſummer by occaſional hoeing and hand-weeding till the leaves cover the ground; after which they will not want any farther material care, only to pull up any large ſtraggling weeds; the plants continue growing till the end of October or November, when the leaves will decay, and the roots finiſh their principal growth for the ſeaſon; though ſeldom attain a conſiderable ſize till after the ſecond ſummer's growth.

However in the following October, after planting, if the roots are advanced to any tolerable ſize, and that they are particularly wanted, ſome may be digged up for uſe, and continued to be taken up as required during the winter, &c. but what are permitted to have another year's growth will be large and fine by the ſecond autumn.

As before obſerved, horſe-radiſh attaining its full growth in autumn, is in beſt perfection to take up for uſe in that ſeaſon, and all winter and ſpring; but in old plantations, after the firſt or ſecond year, the roots may alſo be digged up in ſummer, as occaſionally wanted.

In taking up horſe-radiſh for uſe, proceed in it in a regular manner; dig a trench along the firſt row to the bottom of the root-ſhoots, which then cut off cloſe to the mother-ſtools, with the ſpade or knife, horizontally;

tally; and these remaining, cover them in with the earth of the succeeding trench, according as more roots are digged up as wanted; and thus proceeding trench and trench, the remaining stools will, the following year, produce a successional supply of new root-shoots, attaining a proper growth as above, and in that order will continue producing a succession annually; sometimes several suckers from each mother stool.

About November or December, in open weather, it is proper to dig up a quantity of the full grown horse-radish, and deposit under cover in layers of dry sand, to be ready in case of rigorous frost freezing the ground hard, that those in the garden cannot be easily digged up when wanted.

Horse-radish, where required for sea-voyages, may be taken up in the above season, October, November, December, or any time in winter, and packed close in casks of sand; will keep good several months.

In old plantations of horse-radish, after gathering the first or second and succeeding productions, sometimes in the following summer, many small off-sets advance between the main roots, it is advisable to draw these out in their young growth, that they may not crowd and weaken the principal productions: likewise in old crops as above, several sucker-shoots often rise from the same bottoms in summer, and in which it is eligible to thin out the weakest to two or three of the strongest on each stool, pulling the others clean out as low as possible, not to shoot again: and thus the crop of principal roots will enjoy the greater benefit of the free air, &c. and good room to grow to the fullest perfection.

A crop of horse-radish will continue in production many years, from the same stools or bottoms, in the order before mentioned: observing, however, either sooner or later, when they decline producing good sized root-shoots, make a new plantation in proper time in another compartment of good ground.

When digging up any considerable quantity of horse-radish at a time, for market in autumn, &c. about October, or beginning of November, may plant the ground with cabbage lettuce or coleworts, to come off in spring.

LETTUCE;

By Botaniſts, Lactuca ſativa, *(or cultivated Lettuce).*

LETTUCE conſiſts of many varieties, which are all annual plants, valuable as principal ſallad eſculents, to eat raw, and for ſtewing, &c. the leaves the uſeful parts; in greateſt perfection when cabbaged white and criſp; obtained for uſe moſt part of the year, but in fulleſt perfection in their cabbaged growth in ſummer, principally May, June, July, and Auguſt; alſo in tolerable goodneſs till November: all raiſed from ſeed ſowed annually in ſeveral crops, from January or February till September; both for tranſplanting a foot aſunder, and to remain where ſowed, and thinned to that diſtance, and all come in for uſe in full growth, and run to ſeed the ſame year, except thoſe ſowed in autumn, which continue for early lettuce next ſpring and ſummer, when they alſo run to ſeed and decay, when it is ripe in autumn following.

The varieties of lettuce are,

Common white cabbage-lettuce.
Brown Dutch cabbage-lettuce.
Hardy green cabbage-lettuce.
Honey cabbage-lettuce.
Tennis-ball cabbage-lettuce.
Grand admirable cabbage-lettuce (moſt large and fine).
Imperial lettuce (large).
Cilicia lettuce, green.
White Cilicia lettuce.
White Cos lettuce.
Green Cos lettuce.
Spotted Cos lettuce.
Red Cos lettuce.
Ægyptian green Cos lettuce (early).
Capuchin lettuce.

As there are many varieties of lettuce, it is not neceſſary to cultivate all the ſorts; only ſuch as are moſt eſteemed;

eſteemed; the principal of which are the common white cabbage-lettuce, brown Dutch, hardy green, admirable, and the white and green Cos and Cilicia lettuce; though any of the others may be raiſed for variety in ſmaller portions; and the ſorts are diſtinguiſhed, the cabbage-lettuces by their ſpreading growth, roundiſh leaves, and round depreſſed cabbaged heads; the Cos kinds being of upright growth, with oblong erect leaves and heads.

To have early and general crops, it muſt be obſerved, that as lettuces, after attaining perfection in their full cabbaged growth, in ſummer and autumn, ſoon after run up for ſeed, a repetition of ſowing is neceſſary every month, in ſpring, ſummer, and autumn, as in the following directions:

Early Spring and Summer Crops.

For early crops, the green and white Cos are proper; alſo a few of common white cabbage and brown Dutch lettuce; any of which may be ſowed, the firſt crop the beginning of February; a ſmall portion on warm borders, or in a frame for ſhelter in cold nights: ſow a larger ſupply the middle or latter end of that month; all ſowed broad-caſt, and raked in lightly: and when the plants are an inch or two high, in March or April, prick out a quantity in a warm border, or ſome in a frame aforeſaid ſix or eight inches; or ſome pricked in a hot-bed to bring them forward in growth: afterwards tranſplanted into the borders, &c.

But to have young ſpring lettuce as forward as poſſible, and eſpecially if the autumn-ſowed crops to ſtand the winter are killed by froſt, or eat by ſlugs, &c. or if none were raiſed, it is proper to ſow a few green and white Cos in January or February in a moderate hot-bed, and when the plants are an inch high, prick them into another hot-bed, ſix by four inches aſunder, and when advanced to three or four inches growth, thin ſome out to eight or ten inches diſtance, and plant thoſe drawn out into the open ground.

Theſe early crops will begin to cabbage moderately in May, at which time the Cos lettuce in particular may be forwarded by tying up ſome of the largeſt plants with

ſtrings of baſs mat, a little above the middle, moderately cloſe.

But in want of lettuce of a cabbaged growth, they may alſo be uſed in their young open ſtate, particularly the white cabbage and honey lettuces: and for which purpoſe they may be ſowed thick, both in the ſpring about February, March, and April; and when the plants are of one, two, or three inches growth, may begin to thin them out for uſe; thoſe remaining will advance in ſize, and ſome left thin may ſtand to cabbage: likewiſe in autumn, about Auguſt and September, may ſow a quantity in the ſame order, to remain for thinning, for uſe in winter and early ſpring months, in their open ſtate, and with ſmall cabbaged hearts: the reſt remain for full cabbaging in April, May, &c.

Likewiſe cabbage lettuces may occaſionally, in winter and ſpring, be ſowed thick to cut young, like ſmall ſallading, when an inch or two in growth, and alſo in a more advanced ſtate, till the crops of larger lettuces are ready.

Main Crops for Summer and Autumn.

For general crops, any of the varieties of lettuce may be ſowed in March, April, and May; but a principal ſupply of the Cos, with ſome common cabbage-lettuce, brown Dutch, and Cilicia; all which may be ſowed in the above-mentioned months in any open ſituation, in lightiſh rich ground, either each ſort ſeparate, or ſome thinly mixed of different ſorts, ſowed broadcaſt, and raked in evenly; and the plants may, ſome, remain where ſowed, and thinned a foot or fifteen inches aſunder; and others, when three inches high, planted out in May, June, &c. the ſame diſtance in open compartment of good ground, watered at planting, and afterwards till they take root and grow; and which crops will ſupply the table from May till July or Auguſt, in full cabbaged heads.

Continue ſowing ſucceſſional ſupplies in June, July, and Auguſt, to have a regular ſupply all autumn till October, November, or December; thinning and planting out ſome of each crop as above.

The

The grand admirable, being a fine large cabbage-lettuce for ſummer and beginning of autumn, the beſt ſeaſon for ſowing them is March, April, and May; and, as they ſpread conſiderably, ſhould be planted fifteen or eighteen inches diſtance: they will cabbage very large in June, July, and Auguſt.

In the different tranſplantings of the above main crops of lettuce, generally allot them open ſituations; the more diſtant from the ſpread of trees the better, as in which they are apt to draw up weak, and run ſooner to ſeed, than in open expoſures.

Lettuces may occaſionally be ſowed with ſome other crops, if neceſſary to huſband all parts of the ground to beſt advantage; as a ſmall portion with crops of onions, carrots, parſneps, leeks; principally of the Cos lettuce, as the leaſt ſpreading; ſome to remain, thinly, for full growth; the reſt thinned out, and planted in other places. Alſo may be ſowed any ſorts of lettuce with ſpring and winter ſpinach, and crops of radiſhes; both part to remain, and the reſt tranſplanted: or ſome Cos lettuce may be ſowed in Auguſt, and in the beds of winter onions, to thin out in October and November, to plant in borders and frames.

Likewiſe in planting ſummer and autumn lettuces, that, to ſave or gain ground, ſome may alſo be occaſionally planted between rows of other plants, as between trenches of new-planted celery, or between every other row of tranſplanted leeks and endive, and between rows of other ſmall plants, or along edges of beds, or in alleys between thoſe of ſmall growing crops; alſo in rows along edges of borders and other compartments, all principally in free ſituations; or younger lettuces planted between rows of larger or nearly full-grown lettuces, that will ſoon be gathered off.

Winter Crops, and for Spring.

For winter lettuce, and to ſtand the winter for early ſpring and ſummer crops, ſome ſhould be ſowed the middle and latter end of Auguſt, and beginning and middle of September; or alſo a ſmaller ſupply the beginning of October, principally of the green and white Cos,

common cabbage-lettuce, brown Dutch, hardy green cabbage, Cilicia and capuchin lettuces; all of which, at the different times as above, ſow in any open ſituation of good ground; ſome to continue, others to plant in warm borders, and ſome in frames, to be defended from froſt with glaſſes, or in beds arched over to cover with mats.

The Auguſt-ſowed plants are principally to ſtand in the open ground all winter; ſome where they were ſowed, and thinned moderately; and others thinned out, and planted in October, and beginning of November, in warm ſouth borders and ſheltered quarters of dry ground, five or ſix inches diſtance. Likewiſe, at the ſame time, plant ſome of the lateſt Auguſt ſowing under hand-glaſſes, where winter cauliflowers are planted, ſetting them towards the outſide, to have the advantage of the glaſſes all winter, in which theſe will have a chance to ſurvive the froſt if the others ſhould be killed.

All theſe crops of the Auguſt-ſowed plants, managed as above, are principally to ſtand the winter, ſome of which, of the forwardeſt and largeſt growth, of the cabbage-lettuce in particular, will be proper for uſe in that ſeaſon: the reſt to continue till ſpring, when, if they are thick, about March and April, thin out ſome, and plant a foot aſunder in beds or borders of rich earth; and which, and the other winter-ſtanding plants of this crop that ſurvive the froſt, come in to ſupply the table and markets from February or March, April, till May and beginning of June, in their ſmaller and larger growth.

The September-ſowed plants ſhould, ſome of the ſtouteſt, be planted in October and November, in the warmeſt ſouth borders, four inches diſtance; and at the ſame time a quantity of the lateſt-ſowed plants, of September and beginning of October, ſhould be planted in frames, in beds of light earth, four by three inches aſunder, and defended with the glaſſes of nights, and very wet weather, and in froſts; or ſome planted in beds, under hand-glaſſes, the ſame diſtance, and in beds arched over with hoops or rods, to be covered with

with mats in winter, every cold night, and bad weather, but uncovered every dry mild day, or thoſe under frames and glaſſes have the glaſſes tilted up three inches, or, when dry and mild weather, always taken off daily, but kept cloſe of cold nights and froſty weather.

During the winter, in open weather, examine the lettuce of the above crops if they are annoyed with ſlugs, they ſhould be carefully ſearched for, otherwiſe will ſometimes devour all the leaves of the plants, likewiſe grubs at the root.

For winter-eating young lettuce and early ſpring ſallads in a ſmall growth, ſome hardy cabbage lettuce and brown Dutch may be ſowed in the middle of Auguſt, in a warm ſituation, to remain without tranſplanting, and in September or October the plants moderately thinned; the reſt remaining four to five or ſix inches diſtance, may be cut out in winter and ſpring as wanted, in a thinning order; they will ſometimes ſtand the winter, and afford a tolerable ſupply in that and the early ſpring ſeaſon to uſe young in ſallads with creſſes, muſtard, endive, celery, &c.

In the ſpring, thoſe planted thick in beds, frames, &c. if they moſtly ſtand over the winter, they in March and April ſhould be thinned ten or twelve inches aſunder, and thoſe thinned out planted in the open ground the ſame diſtance.

Theſe winter crops which ſtand till ſpring will come in for uſe in March, April, and May; when tie up ſome of the Cos lettuce to forward their cabbaging.

In ſowing the above crops of winter-ſtanding lettuce, if ground is ſcarce, or large ſupplies of the plants required, ſome of the Cos and cabbage kinds may be ſowed thinly along with winter ſpinach in Auguſt and September; alſo at the ſame ſeaſon ſome may be ſowed thin among winter onions, principally of the Cos lettuce; and, in each of which, ſome to be thinned out for planting in other places, leaving but few among the onions; left thicker among the ſpinach, eſpecially cabbage lettuce; then cut occaſionally in winter or ſpring for ſallads.

Lettuces for cabbaging in Winter.

To have lettuce cabbages in winter, ſow ſome green Cos, Ægyptian, and cabbage lettuce, in the beginning and middle of Auguſt; and in September and October plant ſome in beds or borders, ſix or eight inches diſtance, to take their growth till November; and at which time tranſplant ſome with balls of earth to the roots into beds defended with ſhallow garden frames, and to be further defended with the glaſſes of nights, and cold and bad weather: and alſo in November, December, and January, &c. ſome may be planted in hot-beds in the ſame manner, protected with frames and glaſſes; or ſome planted alſo in forcing-ſtoves: and thus the lettuce will cabbage moderately fine in the winter and ſpring months.

To ſave Lettuce Seed.

For the different crops of lettuce, it is of much importance to be very particular in the ſeed, to have that which has been ſaved from plants that ſtand to be well cabbaged before they run; not ſuch as fly up to ſeed before they attain half growth, which is often a great fault in the ſeed-growers for ſale, as I have frequently obſerved in ſome grounds where there have been ſeveral acres of lettuce for ſeed all running to ſtalk in their young open growth; which has proved a great diſappointment to many gardeners in their crops.

Therefore to obtain good ſeed, either leave or plant out a quantity of the beſt plants that have ſtood the winter, fifteen or eighteen inches diſtance, otherwiſe of the firſt main ſpring crops ſowed in March or April; or of this crop, for ſmall ſupplies for home ſervice, mark a quantity of the fineſt large plants in June, when at full growth, with large well cabbaged hearts, placing a ſtick down to each, as a mark to leave them ungathered or removed; they will all ſhoot up ſtalks in June or July, and produce ſeed in autumn.

Obſerve, in lettuce for ſeed to keep the different ſorts ſeparate at ſome diſtance, that they may not degenerate one another by the commixture of the farina

of

of their flowers, the ſeed of which would be productive of mungrel ſorts.

NASTURTIUM, OR INDIAN CRESS.

In the Botanic Syſtem. Tropæolum, (Tropæolum majus *and* minus*) Greater and Leſs Naſturtium.*

THE NASTURTIUM conſiſts of two ſpecies, annual plants, one of long trailing climbing growth, the other is of a ſmaller dwarfiſh ſize; each furniſhed with roundiſh target-ſhape leaves, and largiſh five-parted orange coloured flower, ſucceeded by roundiſh berries; and of which the young leaves and flowers being of a warmiſh taſte, ſimilar to common garden creſs and water-creſſes, are ſometimes uſed in ſallads, the flowers alſo for the ſame occaſion, and for garniſhing ſallads and diſhes, and the berries to pickle; all for uſe in ſummer and autumn; the plants raiſed from ſeed every year in the ſpring, one ſmall crop, ſowed in drills or patches to remain, acquire full growth the ſame year, and flower all ſummer till October, ripen ſeed in autumn, and then wholly die the beginning of winter.

There are two ſpecies, viz.

Major or greater naſturtium (leaves ſlightly five lobed).

Minor or leſs naſturtium (leaves roundiſh intire).

Any or both theſe ſpecies may be admitted for culture; the firſt being of conſiderably largeſt growth, is more productive of leaves, flowers, and berries; which, however, are equally good for uſe in both the ſorts; though for kitchen-garden culture theſe plants are valued principally for the flowers to mix with and garniſh ſallads occaſionally, and other diſhes for table, and the ſeed or green berries to pickle; and for which the major naſturtium is the moſt eligible to cultivate for the principal ſupply.

In their growth, the major naſturtium, producing long trailing climbing ſtalks ſeveral feet in length, re-

quires ſticks or other ſupport; the other, being of dwarfiſh growth, will ſucceed without that aſſiſtance.

They are hardy to grow in the open ground; but the large ſort ſhould generally be ſowed in a drill or in patches againſt a hedge, rails, walls, or palings, for ſupport, or in open compartments in wide rows, and ſticks placed for them to climb upon; though it will alſo ſucceed in its natural trailing growth, extending on the ſurface of the ground.

Both the ſpecies are raiſed from ſeed ſowed in March or April, though April is generally a good ſeaſon for ſowing them; one ſmall crop ſufficient for a family; drawing a drill for the large ſort either along under a wall, hedge, or rails, &c. for ſupport of the ſtalks; or in one or more drills in any open border, bed, or other compartment, a yard or four feet aſunder, and an inch deep; ſow the ſeed thin in each drill, and cover them in evenly with the earth, or may be ſowed in ſmall patches a yard diſtance, three or four ſeeds in each; and when the plants begin to run, train the ſtalks either to the hedge, rails, walls, &c. or if in open compartments, place branchy ſticks to each row or patch on the moſt ſunny ſide, to incline the plants more readily to the ſupports, and on which they will climb in an aſcending order, and flower at every joint as they advance.

They will thus produce abundance of flowers all ſummer, and berries to gather for pickling in Auguſt and September, permitting the berries to acquire full growth; but gathered while green and tender.

Or when not convenient to furniſh the naſturtium with any kind of ſupport, they may be permitted to extend their ſhoots along the ſurface of the ground, and in which they will alſo produce plenty of flowers and berries.

To ſave naſturtium ſeed, the plants producing plenty of berries in autumn, they will ripen in Auguſt and September, which may then be gathered according as they attain maturity, and ſpread to dry or harden, then bagged up for next year's ſowing.

LAVEN-

LAVENDER.

In the Botanic Syſtem, Lavendula (Lavendula Spica), *ſpiked or common Lavender.*

LAVENDER is a ſhrubby evergreen aromatic, of three or four feet growth, with ſmall narrow leaves, and long ſpikes of ſmall blue flowers, which latter are the parts uſed principally both for drying to put in bags, &c. to lay among cloaths to communicate an agreeable ſcent, and to diſtil for lavender water; in perfection in June, July, and Auguſt; and the plants are raiſed by ſlips or cuttings of the young ſide ſhoots, in ſpring and early part of ſummer, which take root the ſame year, and form proper plants by autumn for final tranſplanting, and continue in root and branches many years, furniſhing a production of flower-ſpikes annually.

The varieties of lavender are,

Common narrow-leaved lavender.

Broad-leaved lavender.

Theſe plants being in requeſt in moſt principal families for their flowers to ſcent cloaths, and for diſtilling, they merit culture more or leſs in kitchen grounds, both in private gardens for domeſtic occaſions, and in more conſiderable quantities in market gardens for public ſupply, and for which, large quantities are cultivated in ſome of the kitchen grounds near London, as in the neighbourhood of Batterſea, Wandſworth, &c. planted in rows in the intervals between the large breaks of ground; ſometimes to form a kind of dwarf hedge; but when planted in compartments together, ſhould be ſet two or three feet diſtance.

They are hardy plants, will grow in almoſt any common ſoil and open ſituation; but are generally the moſt durable in dry ground.

Both the varieties are raiſed from ſlips or cuttings of the young ſhoots in the ſpring, about March, April, and May, or occaſionally in ſummer, in June and

July; cutting or ſlipping off a quantity of the ſide ſhoots, ſix or eight inches long, ſtrip off the under leaves, and plant them in a ſhady border, five or ſix inches aſunder, giving occaſional waterings in dry weather, they will ſoon root freely and grow at top, furniſhed with little branchy heads towards autumn; when, or the following ſpring, tranſplant them where they are to remain, two feet diſtance, or occaſionally hedgeways; they will increaſe in growth, continue ſeveral years, and produce plenty of flower-ſpikes in ſummer.

Or where ſome rooted plants are required for planting, to produce flowers as ſoon as poſſible, they may be obtained of a proper growth in moſt of the nurſery-grounds to plant in ſpring or autumn.

The flowers of lavender being the only uſeful parts of the plants, the ſpikes are generally at proper growth for gathering in July and Auguſt, when cut the ſtalks and flowers together; thoſe for keeping may be ſome tied in bunches and houſed; others have the flowers ſtripped from off the ſpikes, ſpread to dry a little, then put in bags; but for diſtilling, tie them in bunches ready for immediate uſe.

The culture of lavender conſiſts only principally of cutting down any remaining and decayed flower-ſtalks in autumn, alſo to cut away caſual ſtraggling and decayed branches; and in autumn or ſpring dig between the plants, and they will abide many years in a plentiful productive growth; but obſerving, if, after ſome years ſtanding the plants grow naked or dwindling, begin in proper time to raiſe a new plantation.

ROCAMBOLE.

Of the Family of Allium, *or Garlick* (Allium Scorodoprāſum), *Scorodopraſum, or Rocambole.*

THE ROCAMBOLE, a ſpecies of the garlick tribe, is a bulbous rooted perennial, of a ſtrong garlicky taſte and quality, producing a ſmall bulbous root, and tall ſlender ſtem, crowned by a head of ſmall bulbous cloves,

cloves, which and the root are the parts uſed, ſometimes for culinary purpoſes inſtead of common garlick, and for medical occaſions; growing to perfection for uſe in ſummer and autumn, and keeps good the year round; raiſed by planting the off-ſet cloves of the root and head, ſix inches diſtance, one ſmall crop annually in the ſpring, which acquiring full growth in July, and being then taken up and dried, will keep till the following ſpring or ſummer, and perpetuates its ſpecies perennially by the root and head off-ſets.

There is but one ſpecies, viz.

(Scorodopraſum) or Rocambole, or ſmaller garlick, running up with a tall ſtem, contorted and bearing a cluſter of ſmall bulbs at top.

This plant is ſimilar and of the nature of garlick, but with a much ſmaller main bulb, and may be occaſionally uſed for the ſame purpoſes, both in its root and the cloves of the top heads.

It is propagated or raiſed by the off-ſets or cloves of the main root-bulb, and the ſmall cloves of the head; and will grow in any common ſoil and ſituation: one ſmall crop, planted annually in the ſpring or autumn, will furniſh a requiſite ſupply for the ſervice of a family; or in a larger crop where intended for market.

The ſeaſon for planting them is February or March, or not later than the beginning or middle of April; or may be planted in October, November, or December, in light dry ground; being provided with ſome main bulbs, or cloves of the head, divide them into ſeparate off-ſets or cloves, preparing one or more beds, four feet and a half wide, plant them either by dibble, in rows, ſix to nine inches aſunder, and two or three inches deep; or drawing ſmall drills the ſame diſtance and depth, place the ſets in a row along the middle of each drill, and earth them over in a regular manner.

They are thus to remain where planted to attain their proper growth; the plants kept clean from weeds in ſpring and ſummer, is all the culture they require.

In July the roots and top heads will be arrived to full growth, their maturity appearing by the leaves withering, and the ſtem and heads at top changing browniſh and

and hardening; then the roots ſhould be digged up with a trowel or ſpade, cut off the top head of cloves, the whole ſpread to dry and harden, and then tied in bunches and houſed, they will keep good till next ſpring.

MINT.

By the Botaniſts, Mentha.

MINT is a hardy perennial creeping-rooted plant, of many years duration in the roots, producing annual crops of ſtalks and leaves, the uſeful parts, a fine aromatic, of a warm cordial quality, eſteemed for various culinary purpoſes, ſauces, ſallads, ſoups, &c. both in its green growing ſtate in ſpring, ſummer, autumn, &c. and when dried for winter; alſo for diſtilling in ſummer, and for medicine; and is likewiſe obtained green in winter by hot-beds; is raiſed by parting the roots in autumn or ſpring, young ſpring ſhoots and by cuttings of the ſtalks in ſummer; all planted to remain, in beds, borders, or other compartments, in rows ſix inches aſunder; attain proper growth for uſe the ſame year, and continue ſeveral years in the roots, furniſhing annual crops of young ſhoots and leaves every ſpring, &c.

There are ſeveral ſpecies, viz.

Common green or ſpear mint.
Round-leaved ſpear mint.
Oval-leaved mint.
Curled-leaved mint.
Black, or pepper mint.

Of the above varieties, the firſt is the moſt common garden mint, of the fineſt aromatic property for all culinary purpoſes, ſallads, ſauces, &c. the ſecond and third are alſo very good for uſe, as alſo the curled leaved; but the pepper-mint being of a more hot quality, is uſed only for diſtilling, to furniſh pepper mint water, a moſt uſeful ſalutary cordial, very neceſſary in all families; the other mints are alſo diſtilled occaſionally.

For

For kitchen uſes, the ſpear-mint, &c. coming up early in the ſpring, February, March, it may be gathered for uſe when only an inch or two out of the ground, and continued gathering, in its advanced ſtate, all the ſpring and ſummer months; and in winter, ſome roots planted in hot-beds will furniſh green mint all that ſeaſon.

The mints are all hardy plants, that will grow in any common ſoil and ſituation, both in open and ſhady places, if required; planted by roots in autumn, winter, or ſpring, and by rooted young plants, and cuttings of the ſtalks, in ſpring and ſummer, in rows ſix inches diſtance, and will multiply conſiderably, and continue ſeveral years.

The propagation or way of raiſing all the ſorts of mint is by roots, young ſpring ſhoots, and cuttings of the ſtalks.—See each as below.

By roots.—Theſe multiplying conſiderably in a creeping growth, and of which, in autumn or ſpring, either detach a quantity of ſlips, or dig up ſome full roots, and divide them into ſmaller ſets; and having digged the ground, either formed into four feet wide beds, or in a continued plat, draw drills ſix or eight inches diſtance, and two inches deep, place the ſets along the drills moderately thick, and earth them over; or may be planted by dibble in rows the ſame diſtance, by three or four inches aſunder in each row; they will all ſhoot up into ſtalks in March, April, &c. fit for gathering the ſame year, both in its young growth, as wanted in ſpring and ſummer, and in one or two crops, as may be required, in its advanced ſtate for diſtilling, and to dry for keeping.

By young plants.—Theſe riſing in old beds in the ſpring numerouſly, and of which in March or April, when from two or three to five or ſix inches high, draw up a quantity with roots to each, plant them by dibble in rows ſix inches diſtance, they will quickly ſtrike root and grow freely for a full crop the ſame year in ſummer and autumn.

By cuttings of the ſtalks.—Is performed in May or June, when the mint has ſhot up ſtalks a foot or more long,

long, cutting off a quantity in rainy weather, divided into lengths of ſix or eight inches, plant them by dibble in rows half a foot or eight inches aſunder, inſerted half way, or two thirds, into the ground; give a good watering at planting, repeating it, if dry weather, and they will ſoon emit roots below, and ſhoot freely at top in a ſtrong growth for gathering the ſame ſummer and autumn.

In all the above methods of propagating and planting mint, they will furniſh a plentiful production for gathering the ſame year, ſpring, ſummer, and autumn, in young and full growth, as wanted, and will multiply exceedingly by the roots, which will continue ſeveral years, and produce abundant annual crops, as above.

Mint may be gathered for uſe in different degrees of growth during the ſpring and ſummer, when from one, two, or three inches to one or two feet high, always taking the young tops of the ſhoots and leaves together for all preſent kitchen uſes, and for ſallads, green ſauce, &c. and for which purpoſes the common green or ſpear-mint, is preferable, or occaſionally, in default of this, the round and oval-leaved, but never the pepper-mint; and on which occaſions, as it begins to come up early in the ſpring, about February and March, it may be gathered in its young growth all ſpring, and in its more advanced ſtate in ſummer; but in which, to continue a ſucceſſion of young mint, ſhould cut down the ſtalks of a portion in June, July, &c. and they will ſhoot up young from the bottom in a regular ſupply, till September or October.

But mint for drying or diſtilling ſhould be permitted to acquire near full growth, eſpecially the latter; generally in beſt perfection when the plants are juſt beginning to flower, in June and July.

For drying, however, to keep in winter, mint may be cut in a younger growth, in two or three crops occaſionally, from May or June till Auguſt; though when of full growth, beginning to flower, as above obſerved, it will retain its virtue in a ſtronger degree for keeping in winter; cutting it, ſtalks and leaves together, cloſe to the ground, then ſpread in a dry ſhady

place

place out of the ſun, that it may dry leiſurely, afterwards tied in bunches and hung up in ſome dry apartment.

To have green mint in winter by hot-beds, take up ſome roots in that ſeaſon any time from November till February, make a hot-bed for a one, two, or three light frame, or to be arched over with rods for covering with mats, earth it ſix inches thick, place the mint-roots thickly on the earth, and cover them with light mold, an inch deep, put on the glaſſes, or, if an arched bed, cover with mats of nights and ſevere weather; or pots of roots may be placed in a ſtove; the young mint will ſoon come up, and when an inch or two high may begin gathering.

With regard to culture of mint-beds, obſerve, that as the plants remain of ſeveral years duration by the roots, it is proper every ſpring, about February or March, to hoe and clear the beds or other compartment from weeds, raking them, to clear off all weeds and litter, and to looſen the ſurface; and, if in beds, dig the alleys, and ſpread a little earth thereof thinly over each bed; and in autumn, about September or October, cut down all remaining ſtalks of the preceding ſummer cloſe to the ground, hoe and clear the beds from weeds; and, if in beds, as aforeſaid, dig the alleys, and ſpread a little earth over the beds, if omitted in the ſpring: which will refreſh the beds, and add freſh vigour to the roots to produce ſtronger ſhoots and leaves in proportion, and the roots will continue longer in a good ſtate of production.

But obſerve, that as ſometimes after three or four years growth, or more, the roots will dwindle away in patches, and in general ſhoot weakly, it is eligible in that caſe to make a freſh plantation, by good roots, young ſpring plants, or cuttings of the ſtalks, in ſummer, as directed in their propagation.

MARJO-

MARJORAM.

Species of the Family of Origany (Origanum.)

THE MARJORAMS, conſiſting of three ſpecies for the kitchen garden, an annual and two perennials, all ſweet-flavoured aromatic pot-herbs, are low buſhy plants, with ſlender ſhoots and ſmall oval leaves; and of which the young tops of the ſhoots and leaves together are the parts uſed principally in the pot-herb way, in various culinary occaſions, in ſummer, or moſt ſeaſons of the year, in the different ſorts, both in their growing ſtate, and dried to keep for winter; are hardy plants for the open ground, and raiſed ſome from ſeed every ſpring, particularly the annual kind, both to remain where ſowed and to tranſplant, alſo the perennials occaſionally, though theſe are more generally propagated by ſlips, off-ſets, and parting the roots; of each ſort one ſmall moderate crop raiſed in ſpring, ſummer, &c. and planted ſix inches to a foot aſunder; the ſpring and ſummer raiſed plants come in for uſe the ſame year, in ſummer, when ſome may alſo be gathered to dry for winter, eſpecially of the annual marjoram, as this decays top and root in that ſeaſon; but the two perennial ſpecies continue of ſeveral years duration, furniſhing green ſhoots at moſt ſeaſons of the year, more particularly the winter marjoram, remaining in ſhoots and leaves ſummer and winter for uſe as wanted.

The ſorts for the kitchen garden are,

1. (Majorana *vulgaris)* common ſweet majorana, knotted, or ſummer marjoram; the flowers growing in roundiſh knotted-like heads *(annual)*.
2. Pot marjoram, with roundiſh paniculate conglomerated ſpikes *(perennial rooted)*.
3. Winter marjoram, with cordate or hearted downy leaves, and oblongiſh aggregate ſpikes *(perennial, underſhrubby, with ligneous abiding branches)*.

In

In theſe ſpecies, the firſt two are herbaceous, the other ligneous underſhrubby-like; and of which the common ſweet marjoram is annual, or but of one ſummer's duration in the open ground; is a remarkably fine-flavoured aromatic, for kitchen uſes, to give reliſh to broth, ſoups, and various other culinary diſhes, obtained both in ſummer, when growing, and to dry in that ſeaſon to keep for winter: the other two ſpecies are alſo uſeful for the ſame occaſions, green moſt part of the year, more particularly the winter marjoram; and all of which are eligible furniture for the kitchen-garden herbary; a ſmall bed or two is ſufficient for domeſtic uſes, or rather moſt of the ſweet or knotted marjoram, for its more agreeable high-flavoured aromatic property.

They may all be raiſed from ſeed in the ſpring, in a bed or border of light rich earth, both for tranſplanting in ſummer, ſix inches to a foot aſunder; and the annual ſort alſo to remain; but the perennial kinds may be more expeditiouſly raiſed by parting the roots, ſlips, &c. in ſpring and ſummer, &c. or of which, for preſent ſupply, ſome ready-rooted full plants may be procured in ſpring, &c. at the nurſeries, and planted the above diſtance.

The annual, or ſweet marjoram, is always raiſed from ſeed only, ſowed in March or April, in a bed or border of light earth, either in ſmall drills ſix inches aſunder, or broad-caſt on the ſurface, and covered in with earth, or raked in lightly; and in either of which the plants, both ſome to remain where ſowed, and a portion tranſplanted: obſerving, that when the plants are about two or three inches high, in May, June, or July, take opportunity of ſhowery weather to thin the ſeed-bed regularly to five or ſix inches diſtance to remain; and thoſe thinned out, plant in another bed the ſame diſtance, and watered: they will attain proper growth for uſe the ſame ſummer, when from three or four to ſix or eight inches high, or more, to gather for preſent occaſion; but are in beſt or fulleſt perfection when knotted for flowering, eſpecially to pull to dry for keeping; and for which latter purpoſe they will be of proper growth in July and Auguſt, when a quantity may be cut or pulled

pulled up, and ſpread in a ſhady place out of the ſun and wet, to dry gently; then tied in bunches and houſed: they will keep good for uſe all winter and ſpring till ſummer following; as the growing plants in the open ground always periſh in winter.

This ſpecies, however, though principally an annual, will continue in winter if ſheltered from froſt: having, in ſpring or ſummer, ſome ſowed or planted in pots; and in their advanced growth, when they ſhoot up for flowering, cut down the firſt flower-ſpikes to encourage their branching out below in a buſhy head; and then in October or November remove them in their pots either into a garden-frame furniſhed with glaſſes, or in a green-houſe, to have protection from froſt and other bad weather in winter: they will thus abide in a growing ſtate all that ſeaſon till next ſpring or ſummer.

The two perennial marjorams may alſo be raiſed from ſeed, as directed for the annual ſort; but as they propagate abundantly by off-ſets and ſlips, they are more generally raiſed by theſe methods of propagation, which may be performed in March, April, May, or occaſionally in autumn, about Auguſt or September, either detaching a quantity of ſide root off-ſets with roots to each; or whole plants may be parted into ſeparate-rooted ſlips, and planted, ſix inches to a foot aſunder, in beds or borders, and watered: or likewiſe, in the winter marjoram, may detach ſlips of the ligneous top-ſhoots in ſpring and ſummer, and plant them in a ſhady border; and in all of which they will grow and form little buſhy plants the ſame year in ſummer and autumn, for uſe in theſe ſeaſons; and abide two or three years or more, producing ſhoots and leaves for uſe from ſpring till winter; and the winter-marjoram remains for uſe alſo in that ſeaſon: but of theſe two ſorts it is alſo proper, in ſummer, about July or Auguſt, when beginning to flower, to cut a quantity to dry, and keep for winter ſervice.

In gathering marjoram for uſe, the annual ſort may either have the tops cut off as wanted; or, if plenty, may be pulled up in a thinning order, or clean, as they come to hand, when at full growth, in large ſupplies to dry

dry for keeping, or for market: but the perennial ſorts having abiding roots, ſhould always have the tops cut or ſlipped off for uſe, the ſhoots and leaves together.

With reſpect to culture of marjoram, the annual ſort being but of one ſummer's duration, muſt be raiſed every year from ſeed; but the other two ſpecies, being abiding plants, will require occaſional dreſſing, ſuch as pruning caſual decayed and ſtraggling ſhoots, and to cut down remaining and decayed flower-ſtalks, &c. in autumn, and the beds cleared from weeds; and, in September, October, or November, or in the ſpring, dig the ground lightly between the plants, if room, with a trowel or narrow ſpade; or occaſionally dig the alleys, and ſpread a little earth over the beds; and, after two or three years growth, or more, if the plants diſcover a decaying or dwindling ſtate, begin timeouſly to plant new beds, as above directed.

To ſave marjoram ſeed, permit ſome plants to flower; they will ripen ſeed in autumn, when cut off the ſeed-ſpikes; dry them on cloths, then rubbed out and cleaned.

MARIGOLD.

By the Botaniſts Calendula, (Calendula officinalis) *or Officinal Marigold.*

THE MARIGOLD is a hardy annual plant, of buſhy growth, one or two feet high, producing many large compound yellow flowers, which are the only parts uſed, both as pot-herbs to put in broth, and for medicine; eligible both in their growing ſtate all ſummer and autumn, and to dry for winter: raiſed from ſeed, one ſmall crop annually in the ſpring, ſowed either to remain, and thinned one or two feet aſunder; or ſome tranſplanted young that diſtance; and will ſoon advance to flowering the ſame year; and continue in ſucceſſion abundantly all ſummer, and ripening ſeed till October or November, &c. then wholly periſh.

One

One ſpecies, furniſhing ſeveral varieties, viz.

Common golden, or orange-coloured marigold.
Lemon-coloured marigold.
Single flowered of each.
Double flowered of each.
Double ranunculus marigold.
Childing, or hen and chicken marigold; ſmall flowers emitted round the ſides of the main one.

Any of theſe varieties may be cultivated, though the common orange-coloured ſort, both in its ſingle and double ſtate, is eſteemed of ſuperior quality for uſe; and, as the flowers are uſeful, both in culinary and medical occaſions, and the plants of moſt eaſy culture, they merit a place in the herbary collection of ſweet or pot herbs.

They are very hardy annuals, will grow any where; and the ſcattered or ſelf-ſowed ſeeds of former plants generally produce many young ones naturally: however, as theſe come up irregularly, a proper ſupply may be eaſily raiſed by regular culture of ſowing, &c.

All the ſorts are raiſed from ſeed, ſowed in the ſpring, about February, March, or April, &c. one ſmall bed for a family, or in proportion for larger demand; and may be ſowed in any open compartment, or where convenient, either in drills a foot or eighteen inches aſunder, or broad-caſt and raked in; and the plants, when one, two, or three inches high, thinned to the above diſtance; or ſome may be tranſplanted in the ſame order. Keep the whole clean from weeds in their young growth, and they will ſoon ſpread, and require no farther care.

Or ſelf-ſowed young plants, riſing naturally from the ſcattered ſeeds of former plants, if intended to continue them for a crop, thin them regularly, or tranſplant as many as wanted in May or June, the diſtance as above.

They will all grow to a flowering ſtate in June or July, and continue producing plentifully for uſe, till November or December; but generally, when in full flowering in ſummer, gather neceſſary ſupplies to dry for winter, plucking the flowers whole; and detach therefrom

therefrom the petals or flower leaves; ſpread theſe to dry leiſurely out of the ſun, then put up in bags ready for future occaſions. They will keep good all winter, till ſpring or ſummer following.

To ſave marigold ſeed; the flowering plants produce it in great abundance all ſummer and autumn, in large heads, which gather according as they ripen in dry weather; rub out the ſeeds, and depoſit them in a dry apartment for future ſowing.

Or from ſcattered ſeeds falling on the ground, plenty of young plants generally come up in the ſpring, which, if thought convenient, may prove ſufficient for ſupply of a family.

PARSNEP.

In the Botanic Syſtem Paſtinaca, (Paſtinaca ſativa) *cultivated or common Parſnep.*

THE PARSNEP is a biennial plant, raiſed from ſeed in the ſpring, attaining perfection the ſame year, and the next it ſhoots for ſeed, and wholly decays; is a moſt valuable eſculent, for its large wholeſome profitable root, for uſe in winter and ſpring, to boil and eat with ſalt fiſh, corned beef, &c. and ſhould be raiſed plentifully in every kitchen-garden for family uſe, and abundantly for market: is always raiſed from ſeed in the ſpring; one principal crop; the plants to remain where ſowed, and thinned eight or ten inches diſtance; in which they will arrive to a large ſize, in full perfection, by October or November, and continue good till April or May, then runs for ſeed; and, if permitted to ſtand, ripens it in autumn, and the plants then die both top and root.

There is only one ſpecies, viz.

Cultivated or common ſwelling parſnep.

This plant deſerves culture for a principal crop in every kitchen-garden, being a very wholeſome and nouriſhing root, moſt excellent for winter and ſpring eating, from October or November till April or May.

Parſneps

Parſneps ſhould have a lightiſh rich deep ſoil, and if it has been dunged the year before, will be rather more eligible than the ſame ſeaſon: dig or trench it one full ſpade, or two ſpades deep, breaking all large clods, that nothing may impede the ſtraight downright growth of the roots.

They are propagated or raiſed by ſeed ſowed every year in the ſpring, about the middle or towards the latter end of February, but not later than March, to obtain a good crop of large full-ſized roots; though, if omitted before, they may be ſowed in April leſs ſucceſsfully; but a middling crop is better than none; allotting the whole generally in one principal crop, ſowed either at once, or in two ſowings, in the above ſeaſon, not later, having the ground where this crop is intended neatly digged in a regular manner; it may either be divided into beds four to five or ſix feet wide, or remain in one continued compartment: ſow the ſeed broad-caſt on the general ſurface, and rake it in evenly; or, in large market-grounds, or field-gardens, where ſowed in conſiderable quantities for market, harrow it in, and roll the ground, to ſmooth and cloſe the ſurface effectually over the ſeed.

When the plants are come up about two or three inches high, they muſt be thinned and cleared from weeds in May and June, &c. either by hand-weeding, for ſmall ſupplies, or, both for theſe and large crops, performed by hoeing, particularly for the latter, as the moſt expeditious method, as well as by looſening the earth, proves more beneficial to the plants, and which, in either method, thin out eight or ten inches diſtance, and eradicate all weeds; repeating the hoeings occaſionally till the leaves of the parſneps cover the ground to keep down weeds, and they will not require any further culture.

They will attain full growth in the roots for uſe by the middle or end of October; when, or any time in that month, ſome may be digged up for uſe; and continue taking them up according as wanted, during winter and following ſpring.

But as in the end of October or beginning of November theſe roots will be arrived to their ultimate perfection of full growth, and the leaves will decay, it will then be proper to dig up a quantity to lay in ſand, under cover, for more ready uſe in winter: when digged up, cut off the tops cloſe, clean the roots from wet earth, then, in ſome convenient dry place under cover, lay them in dry ſand, a layer of ſand and roots alternately; they will thus be ready, in good ſound condition, at any time in winter, when thoſe remaining in the ground are frozen in by ſevere froſts, and will keep till April or beginning of May; obſerving if any ſhoot in the ſpring, cut the tops off cloſe to the crown of the root.

Likewiſe in the ſpring, about February, if any remain in the ground, it is adviſable, before they begin to ſhoot, to take them all up, and lay them in ſand, or dry earth, in the garden; and thus by retarding their ſhooting, they will keep good throughout the ſpring months.

To ſave parſnep ſeed, have ſome largeſt fine ſtraight roots in February, and in an open compartment of ground, trench them down perpendicularly in rows two feet aſunder, by the ſame diſtance in each row, inſerting them into the earth over their crowns: or ſome good roots in the ground may be permitted to remain for this purpoſe, at proper diſtance, as above: they will all ſhoot up ſtrong ſtems in ſpring and ſummer, and produce plenty of ſeed in large umbels, ripe in July or Auguſt.

MUSTARD;

In the Botanic Syſtem, Sinapis.

MUSTARD is an annual plant, of a warm acrid reliſh, valuable both for its young leaves in their ſmall tender growth, of but a few days or a week old while in the ſeed lobes, to uſe as a ſmall ſallad-herb, in compoſition with young creſſes, radiſh, rape, &c. in ſpring, ſummer, or all the year if required; and for

its ſeed when reduced to flour, to make the table-ſauce called muſtard: is always raiſed from ſeed ſowed for ſallads, twice or thrice or oftener every month in ſpring, and part of ſummer, or as it may be in requeſt; acquiring a proper growth for that purpoſe in one, two, or three weeks, according to the ſeaſon, or method of raiſing, in the open ground, or in hot-beds, &c. and for its ripe ſeed for muſtard as aforeſaid: is raiſed in one main crop, ſowed in the ſpring in gardens or fields to remain; and in all of which the plants ſoon run to ſtalks, ripen ſeed in autumn, then wholly decay.

The ſpecies of muſtard are,

White muſtard (ſeed white, larger).

Black muſtard (ſeed blackiſh).

Of theſe two ſpecies, the white muſtard is the ſort the moſt eligible to cultivate for ſmall ſallad, the leaves being more fleſhy and mild; the other is the ſort commonly raiſed for its ſeed to make flour of muſtard, as being of the ſtrongeſt warm taſte and flavour, though both the ſorts are occaſionally uſed for that purpoſe.

For ſmall ſallading, the white muſtard being preferable to the black, it, for that purpoſe, ſhould be raiſed in aſſemblage with creſſes, radiſh, and other ſmall warm-flavoured herbs, for ſpring ſallads, or, if required, for ſummer, autumn, and winter, each ſort ſowed ſeparate, in ſmall portions; and obſerving, as the muſtard plants for ſallads ſhould be uſed while quite young in the ſeed leaves, and one crop furniſhing generally but one gathering, that, to have a proper ſucceſſion, the ſowings ſhould be performed once a week or fortnight in ſpring, from February or March, till May; then, if required longer, ſow once a week or ten days all ſummer till October, and, if required in winter, ſow once a fortnight or three weeks; generally ſowing in flat ſhallow drills, very thick, and juſt covered with earth, or not more than a quarter of an inch deep: but, for the general methods, ſee *Small Sallad Herbs*; alſo the article *Creſſes*.

The ſpring ſowings may be performed both occaſionally in moderate hot-beds, the earlieſt crops in February

bruary and beginning of March, if cold weather, or required to have the ſallad as forward as poſſible; but, if a mild ſeaſon, may alſo begin ſowing in the full ground in February, in warm borders; and in larger ſupplies in March, April, &c. either in borders, or other compartments of light mellow earth; but in ſummer, from May or June till September, ſow in ſhady borders, or ſhade with mats, and give frequent waterings: and, in winter, ſow in frames or under hand-glaſſes; or, in froſty weather, ſow in hot-beds till February or March; obſerving as directed for *Creſſes*. See alſo the article *Small Sallad Herbs*.

Always ſow very thick for ſallading; otherwiſe, as the plants, being gathered when quite young, they will not afford ſufficient ſupplies; either ſowed in flat ſhallow drills, three or four to five or ſix inches aſunder, and the ſeed covered in very lightly, or occaſionally, by raking the ground ſmooth, ſow thickly on the ſurface, ſmoothing down the ſeed with the back of a ſpade; and ſift or ſcatter fine earth over it, not more than a quarter of an inch, that the plants, as coming up very thick, may riſe freely and regular.

When gathering muſtard for ſallads, and other ſimilar ſmall herbs for that purpoſe, they ſhould be cut while quite young in the ſeed leaves, and generally cut them cloſe to the ground.

And as the ſame plants afford but one gathering of eligible young growth as above, ſhould have others advancing in ſucceſſion crops, by ſowing every week, fortnight, or three weeks, as before obſerved.

To ſave muſtard ſeed for ſallading, either leave ſome rows of the ſpring crops to run, or ſow for that purpoſe, in March or April, eſpecially for large ſupplies, either thinly in drills ſix inches to a foot aſunder, or broad-caſt and raked or harrowed in; they will quickly come up, run to ſtalk, and ripen ſeed in July or Auguſt.

But to raiſe a large crop for the ſeed to make flour of muſtard, the black is eligible; but both ſorts may be uſed occaſionally, each ſort ſowed ſeparate; and for which purpoſe ſhould allot a conſiderable compartment of

ground, in proportion to the quantity required, either in gardens or fields, in open ſituations, March or April the proper ſeaſons; ſowing either broad-caſt thinly, and raked or harrowed and rolled in, or in drills a foot diſtance: and the plants of the broad-caſt ſowing, when of one or two inches growth, ſhould be hoed and thinned eight or ten inches; and, in both methods, hoe them clean from weeds in their early ſtate; they will ſoon cover the ground, and require no further care; ſhoot to ſtalks, and ripen the ſeed in July or Auguſt for gathering.

POMPIONS, *or* PUMPKINS, GOURDS, &c.

In the Botanic Syſtem, Species of the Cucurbita (Cucurbita Pepo, &c.)

THE POMPION, or gourd tribe, are tenderiſh annual plants, of large long trailing growth, extending many feet in length along the ſurface of the ground, and ſome in a climbing aſcending order, upon any adjacent ſupport of ſtakes, hedges, &c. producing fruit at the joints in ſummer, June, July, Auguſt, &c. of various ſizes, ſhapes, and colours; ſome of conſiderable magnitude, others not larger than oranges and pears, and which are the parts occaſionally uſed, ſometimes in their quite young green ſtate, the ſize of walnuts or common eggs, in different culinary preparations; and ſometimes of larger growth for the ſame occaſions; and, in their full grown ripe ſtate, for pompion pie, &c. though are not of material value to cultivate in any conſiderable crops, only a few by way of variety: the plants raiſed from ſeed ſowed annually, either in a hot-bed in April, for tranſplanting into the full ground in May, or ſowed in May in the open ground to remain; they will extend with ſtrong runners in June, produce fruit principally in July and Auguſt, ripening in ſucceſſion till September and October, moſtly with a thick rind, or ſhell; ſome ſmooth, and of a fleſhy decaying nature; others warted, carbuncled, &c. and hard, woody, and durable; all containing a

ſoft

ſoft pulp and many ſeeds: and, at the approach of winter, the plants wholly die, top and root.

The principal ſpecies and varieties are,

1. (Cucurbita *Pepo*), pompion gourd, or common pompion, or pumpkin: many varieties, ſome very large, others middling, and ſmall, viz.
   - Great round pompion.
   - Great oval pompion.
   - Great oblong fruited.
   - Smaller round fruited.
   - Hemiſpherical fruited.
   - Orange pompion gourd.
   - Pear-ſhaped.
   - Green-rinded.
   - Yellow-rinded.
   - Stone-coloured.
   - Fleſh-coloured.
   - Liver-coloured.
   - Orange-coloured.
   - Party-coloured.
   - Striped.
   - Marbled.

   In all of which varieties the fruits is ſmooth-rinded, with an even ſurface; ſome growing very large, from one to two feet or more diameter; others middling ſize, and ſome as ſmall as oranges and pears; the ſhell thick, and fleſhy internally, and of a decaying nature.

2. (Cucurbita *verrucoſa*), or warted gourd; the fruit moſtly moderate ſize, and ſome ſmall;—many varieties, viz.
   - Round fruited.
   - Oblong fruited.
   - Depreſſed fruited.
   - Bottle-ſhaped.
   - Top-ſhaped.
   - Orange-ſhaped.
   - Lemon-ſhaped.
   - Yellow fruited.
   - White fruited.

Stone-coloured.
Yellow and white.
Yellow and green.
Striped.

All theſe varieties have a ſomewhat ligneous hard ſhell, generally warted, carbuncled, knotty.

3. (Cucurbita *Melopepo*), or buckler-ſhaped knotty gourd, or ſquaſh;—ſeveral varieties, viz.

Depreſſed buckler-ſhaped.
Flat fruited.
Hemiſpherical fruited.
Conical fruited.
Turbinated fruited.
Depreſſed ſtar-ſhaped.
Flat-ſided.
Citron-ſhaped.
White fruited.
Yellow fruited.
Striped fruited.
Party-coloured.

Theſe ſorts grow in various odd ſhapes and ſizes of great ſingularity: the moſt prevailing is roundiſh depreſſed or flat, knotty or carbuncled; moſtly of a decaying nature.

4. (Cucurbita *lagenaria*), flaggon or bottle gourd; the fruit of various ſingular ſhapes and dimenſions; from one or two to five or ſix feet long; the ſhell ſmooth, woody, and durable; conſiſting of many varieties, viz.

Oblong fruited.
Round fruited.
Cylindrical fruited.
Horn ſhaped.
Long cylindric fruited.
Bottle-ſhaped.
Barrel-ſhaped.
Turbinated.
Taper fruited.
Pear-ſhaped.
White fruited.

Yellow fruited.

Stone-coloured, &c.

The fruit in ſome of thoſe varieties growing very large, from one or two to five or ſix feet long; and having, when ripe, a hard woody durable ſhell, that, being cleared of the pulp, is ſometimes employed for various houſehold utenſils, as liquid and other veſſels, particularly in America, where they grow naturally: hence are called bottle or barrel gourds.

Of the above ſpecies and varieties of pompions and gourds, the firſt ſort, in its ſeveral varieties, is the moſt commonly cultivated, and is preferable to the others for eſculent purpoſes; though the others when green, quite young and tender, may alſo be uſed occaſionally; and a few of each may be admitted in the kitchen-garden for variety: all which may be eaſily raiſed either by ſowing in a hot-bed in April, to plant out in May, as they will not ſtand the open air till the weather is tolerably warm and ſettled; or, in May, the ſeed may be ſowed in the full ground to remain, more particularly the common pompion, as being the hardieſt; and which is often ſowed or planted upon dunghills, or in any open compartment of kitchen-ground, where, having a large ſcope to run, it will extend many feet every way, and produce great abundance of fruit, which are ſometimes uſed occaſionally both in their young green ſtate for culinary uſes, and to pickle, and in their full growth, when ripe, to make pompion pie, as before obſerved, the pulp cleared out, then the fleſhy part ſliced and mixed with apples, ſome ſlices of quinces, ſugar and ſpices, &c. and the whole put into the ſhell, and baked in an oven for uſe; though this at beſt is rather a ſtrong food.

All the ſpecies and varieties of pompions and gourds, being tenderiſh exotics, will not grow in the open ground, in this country, before May; but, to have them as forward as poſſible, it is moſt adviſable to raiſe ſome in a hot-bed in April, to plant out in May, when warm weather; though moſt of the kinds will alſo ſucceed by ſowing in the natural ground in May, and be-

ginning of June, more particularly all the pompion gourds: however, where there are conveniencies of hot-beds, it is adviſable to raiſe ſome of each therein in April, either under a frame or hand-glaſſes, for tranſplanting in May as aforeſaid; or, in the end of April or beginning of May, ſome may be ſowed or planted upon holes of hot dung, eight, ten, to twelve or fifteen feet diſtance, to remain, and defended with hand-glaſſes, garden-pots, &c. as hereafter explained, which will forward them conſiderably: but, in want of theſe conveniencies, they may all be raiſed in the natural ground in May, in which generally ſowed where the plants are to remain.

Obſerve in general, that as theſe plants are extenſive runners, they ſhould be allowed copious room to ſpread, of eight, ten, to twelve or fifteen feet diſtance, as before ſuggeſted, as they will completely fill that ſpace, more eſpecially the common pompions; generally for the larger fruited kinds allot a capacious ſpace for the runners to extend along the ſurface of the ground; others of the ſmaller and more curious varieties may be planted or ſowed near walls, palings, hedges, arbours, &c. to have the runners trained thereto, in an aſcending direction, or ſome trained round ſtrong ſtakes.

As all the ſorts are raiſed always from ſeed ſowed every year, principally in April and May, both in hot-beds for tranſplanting, and in the natural ground to remain, obſerve the following particulars for each method:

To raiſe ſome for fruiting as forward as poſſible in ſummer, ſow ſome ſeed in April, either in any cucumber hot-bed, &c. then in cultivation, or in a ſmall hot-bed made for that purpoſe for a one-light frame, or for one or more hand glaſſes, ſowing it half an inch to near an inch deep; and when the plants are come up in the ſeed-leaves a few days old, either prick ſome in the earth of the hot-bed, four inches aſunder, or in ſmall pots, one or two plants in each, and plunged in the ſame or another hot-bed; giving them water, and occaſional ſhade in ſunny days, till they take root; or if in May, and warm weather, ſome in that young ſtate

of

of growth may alſo be planted out at once into the open ground, or upon holes of hot dung, and defended with hand-glaſſes, garden pots, &c. in cold nights, as before intimated: however, continuing thoſe pricked in the hot-bed till they advance in the rough leaves one or two inches broad or more, ſupplying them with admiſſion of proper air and neceſſary waterings; then in May taking opportunity of warm ſettled weather, and tranſplant them with full balls of earth to their roots, into compartments of good ground, ten to fifteen feet diſtance; or ſome upon old dunghills, or any vacant ſpace, as the common pompion; alſo may plant ſome ſmaller kinds under walls, palings, hedges, rails, arbours, &c. on which to train the runners in an aſcending growth; watering them as ſoon as planted, and give occaſional ſhade from the mid-day ſun till they take good root and begin to grow.

At firſt planting them out, if cold nights occur, they may be occaſionally protected either with hand-glaſſes, or of nights with large garden pots whelmed over them, or defended with mats, &c. till ſettled warm weather; then diſcontinued.

Or in planting them out from hot-beds where raiſed, ſome of the more curious or tenderer kinds particularly, may be planted in holes of hot dung; it will forward them conſiderably in growth; digging holes in the ground two or three feet wide, and a ſpade deep, fill them with hot dung, and earthed over ſix or eight inches, then plant one or two plants in each, giving water and ſhade at firſt planting; and if any ſpare hand-glaſſes to place over each hole, it will bring them ſtill more forward: or, in want of glaſſes, may defend them in nights, and cold weather, with garden pots or mats, the firſt week or fortnight: but when the weather is warm, expoſe them fully day and night.

Or likewiſe, in default of young plants, previouſly raiſed in a hot bed to plant out as above, ſome holes of hot dung may be prepared in the ſame manner the end of April or beginning of May, and ſow in each three or four ſeeds, and which may alſo be defended with hand glaſſes, or, in cold nights, with garden pots or

mats, as before obſerved: and when the plants are come up, thin them to one or two of the ſtrongeſt in each hole.

However, in want of hot-beds, or hot dung, glaſſes, &c. to raiſe and forward theſe plants, as above, in their young growth, they may all be ſowed in the full ground, the beginning, middle, and latter end of May, when ſettled, dry, warm weather; marking out the places for ſowing at the proper diſtances before explained, dig each place two or three feet wide, breaking the earth fine, and hollowing it a little, ſow three or four ſeeds in each half an inch deep; and when the plants come up, they remaining where ſowed, thin them when a few days or a week old, to one or two of the ſtrongeſt in each hole: draw a little earth about the ſtems of them, and give a moderate watering to ſettle the earth about the roots.

Thus far obſerved relative to the different methods of ſowing and planting; their after-culture in general is to give the plants frequent ſupplies of water in dry weather, both in their early and advanced ſtate of growth; and when they puſh runners, conduct them in regular order along the ſurface of the ground: and if any particular varieties are planted near walls, palings, hedges, arbours, &c. the vines or runners may be trained thereto in an aſcending order; or to others of the more curious ſorts, in detached compartments, may have ſtrong ſtakes placed in the ground, and to which may conduct the runners in a ſpiral or upright direction; and thoſe thus elevated from the ground, will diſcover their fruit to greater advantage; and if againſt warm walls, &c. the fruit will ſooner acquire a proper growth; obſerving in general, when the plants are fruited, to give plentiful waterings in dry hot weather, in June, July, and Auguſt.

Where theſe fruits are in requeſt for uſe in culinary occaſions, they are moſt deſirable for that purpoſe when quite young and green, from the ſize of walnuts to that of hen or gooſe eggs; or, occaſionally, the pompion kinds, when fully grown and ripe, principally thoſe of moderate ſizes.

When

When full grown and ripe in September, &c. any curious ſorts, either ſingular in regard to large or ſmall ſizes, ſhapes, colours, ſtripes, &c. being gathered when dry, cut with part of the foot-ſtalk, may be hung up in any dry apartment, they will remain ſound a conſiderable time: or large kinds, being diveſted of the ſoft pulp, by a hole at one end, will keep longer: but thoſe with ligneous ſhells will keep conſiderably the longeſt; and if theſe are cleared of the pulp and ſeeds, they will remain firm and durable, more particularly the bottle gourds.

To ſave ſeed of theſe plants, collect ſome of the full grown ripe fruit, of the particular varieties required: place them in the full ſun a week or two, then houſed, and cut them aſunder down the middle; take out the pulp and ſeeds, waſh the latter from the former, ſpread the ſeed to dry and harden thoroughly, and then put it up in bags, papers or boxes, for future ſowing.

PARSLEY;

In the Botanic Syſtem, Apium (Apium Petroſelinum), *Petroſelinum, or common Parſley.*

PARSLEY is a hardy biennial pot-herb, the leaves of which, being the parts uſed, are obtained for uſe in their green growing ſtate, at all ſeaſons of the year, for various culinary purpoſes; raiſed from ſeed ſowed annually in the ſpring, or occaſionally in ſummer, if before omitted: one ſmall crop, ſowed either in drills nine inches aſunder, or on the ſurface, and raked in: The plants to remain where ſowed, and do not require thinning; come in for uſe the ſame year in ſummer; continue in green leaves for uſe all the year till April or May following; then run to ſtalks, producing umbels of ſeed, ripening in July or Auguſt, and then the plants die root and top.

The varieties of parſley are,

Common plane-leaved parſley.

Curled leaved parſley (*fine thick curly leaves*).

Large-rooted parſley, for its roots, which ſee under a ſeparate head.

Of theſe varieties of parſley, the firſt two are the principal pot-herb kinds, for their leaves, both equally good for general uſe; though the curled ſort claims preference for its buſhy-growing thick curly leaves of more ſucculent ſubſtance than the common parſley: but as to the third ſort, large-rooted parſley, it being cultivated principally for its root, requiring a different culture from the others, it is treated of under a diſtinct head.

In either or both the firſt two varieties, one principal crop, ſowed annually, is ſufficient for the whole year; or, at moſt, ſow a main ſupply in the ſpring; and if a ſmaller crop is ſowed in June, July, or beginning of Auguſt, the plants will ſtand longer the following ſpring before they run.

Both the pot-herb parſleys are raiſed always from ſeed, which, as the plants are biennial, or of the two years kind, produced from ſeed one year, and decay the next, ſhould be ſowed every year, generally in the ſpring, or occaſionally in ſummer or autumn: and may either be ſowed in ſingle drills for edgings to borders, beds, or main quarters of the kitchen garden; or, for larger ſupplies, ſowed in continued drills, nine inches aſunder; or occaſionally ſowed broad-caſt in beds, and raked in lightly; though drill-ſowing is the moſt regular culture, and admits of more readily clearing the plants from weeds, and of gathering the produce.

The general ſeaſon for ſowing parſley is in the ſpring, about February, March, or April: or, to have young parſley as early as poſſible, and the ſeed being of ſlow growth, ſome may be ſowed in January or beginning of February in open weather; that ſowed early will be ſix weeks or more in coming up; though when ſowed, in a more advanced period, in the ſpring or ſummer, it will come up in a month or three weeks, or a fortnight; but if omitted ſowing in the ſpring, it may be performed ſucceſsfully in any of the ſummer months till the beginning or middle of Auguſt: or, if you ſow early, ſome more may be ſowed in ſummer, either

either in May, June, July, or in Auguſt, to ſtand longer the following ſpring before the plants run to ſeed, as above obſerved.

To ſow parſley in drills, have either a ſmall hoe, or flat-ended ſtick, two inches broad, drawing therewith ſhallow drills, either ſingly along the edge of a border, &c. or in continued rows nine inches aſunder, as above intimated. Sow the ſeed moderately thick, along each drill, and cover it in evenly with the earth broken fine, about a quarter or half an inch deep.

Or to ſow broad-caſt, form the ground into four or five feet wide beds, with alleys a foot wide between; ſow the ſeed thinly on the ſurface, tread it down, and rake it in evenly.

If any is ſowed either late in the ſpring, or in ſummer, when dry hot weather, give occaſional waterings.

When the parſley comes up, all the culture it requires is to keep the plants clean from weeds all ſummer; or if ſome of the curled ſort is thinned in its early growth, five or ſix inches diſtance, it will grow ſtocky at bottom, with large thick leaves in a buſhy growth.

The gathering of parſley for uſe may be commenced when the plants are about two or three inches high, and continued according as wanted in their more advanced growth; generally cutting the leaves almoſt cloſe to the ground, and the roots will ſend forth abundant ſucceſſional ſupplies all the year; obſerving when it grows faſter than it can be uſed, and is become large and rank, cut it down cloſe, it will ſoon ſhoot up again thick from the bottom; and this ſhould be particularly obſerved in the latter end of autumn, about September, October, or beginning of November, when of a rank growth, to cut the whole down cloſe before it rots by wet in its overgrown rank ſtate, and that the parſley may come up thick in a freſh ſtocky growth againſt winter.

Where parſley has been omitted ſowing, or in want of a ſupply for immediate uſe, till that ſowed attains a proper growth, ſome roots may be procured from a neighbouring garden, in ſpring, or any time of the year, when neceſſary, and planted in a row two or three inches aſunder;

aſunder; they will grow and furniſh plenty of leaves for preſent ſupply.

To ſave parſley ſeed, let ſome year-old-plants in April or May be permitted to run to ſtalk, they will ripen abundance of ſeed in July or Auguſt.

LARGE ROOTED, *or* HAMBURGH PARSLEY;

A Variety of the Common Parſley (Apium Petroſelinum).

THIS variety of parſley, producing a large long white root, like a ſmall parſnep, is the principal eatable part, to boil and eat like carrots, &c. obtained in perfection for uſe in autumn and winter, being both good and wholeſome, and a great aſſiſtant in diſorders of the gravel; is a biennial plant; the leaves ſimilar to the common parſley; though is cultivated chiefly for its root, as above: raiſed by ſeed annually in the ſpring, ſowed in one, two, or three ſmall crops, broad-caſt, or in drills, ſix or eight inches aſunder, each to remain, and the plants thinned; which, attaining a proper growth in the root about Auguſt, September, till October, continues good till next ſpring, then ſhoots up ſtalks, producing large ſeed umbels, ripening in autumn, and the plants decay.

There is but one variety of this ſort, viz.

Large-rooted, or Hamburgh parſley.

The large-rooted parſley, differing only from the common ſort, in the large growth of its root, which, if allowed proper room, by thinning to eligible diſtances, grows long and ſtraight, to a handſome ſize, an inch and half thick or more in the upper part; is by many much eſteemed for its wholeſome quality, boils tender, and ſweet to eat, and merits culture more or leſs in every kitchen garden.

This is a hardy plant, that will thrive in any moderately light ſoil, and open ſituation.

It is raiſed from ſeed, always ſowed annually in the ſpring, about the middle or latter end of February, or any time in March, but not later than April, for the full

full crop to have large roots; though ſome may alſo be ſowed in May and July, for late autumn drawing, and ſpring ſupply; allotting them an open compartment of lightiſh mellow ground, which, being digged, may either be divided into beds four or five feet wide, or remain in a continued plat: ſow the ſeed either broad-caſt on the ſurface, and raked in regularly, or in ſmall drills ſix or eight inches aſunder, and covered in lightly with the earth.

When the plants are come up two or three inches high, in May and June, hoe and thin them to ſix or eight inches diſtance, cutting or pulling up all weeds, and keep the plants clear therefrom all ſummer.

Thus far being the general culture of theſe plants, they will acquire a proper growth in the root to begin drawing in Auguſt and September, and arrive to full ſize in October, for winter uſe, and remain good till the following ſpring, middle or end of April; then ſhoot for ſeed, become hard, ſtringy, and juiceleſs, unfit for uſe.

But in November, if ſome are digged up in open dry weather, the tops cut off, and laid in ſand under cover, as directed for carrots, &c. they will be ready in caſe of hard froſt in winter, and continue good longer in the ſpring.

To ſave ſeed of this large-rooted parſley, leave ſome year-old plants in the ſpring; they will ſhoot to ſtalk, and produce plenty of ripe ſeed in July or Auguſt.

PENNY-ROYAL;

A Species of the Family of Mentha, *or Mint (Mentha* Pulegium), *i. e. Pulegium, or Penny-Royal.*

PENNY-ROYAL is a ſmall perennial creeping plant, an high-flavoured aromatic herb, growing with ſlender ſhoots and ſmall oval leaves; the young ſhoots and leaves together are the uſeful parts, in ſeveral culinary occaſions, and to diſtill for penny-royal water, &c. obtained green for uſe in ſpring, ſummer, and autumn; and

and ſome dried for winter; and is raiſed by ſlips of and parting the roots, and by ſlips and cuttings of the rooting ſhoots in ſpring and ſummer; planted a foot diſtance, to remain; one ſmall crop will continue ſeveral years, furniſhing ſhoots and leaves annually.

There are two varieties, viz.

Broad-leaved penny-royal.

Narrow-leaved penny-royal.

Of theſe the firſt ſort is principally cultivated; though both the varieties are nearly of equal quality for uſe.

They are very hardy plants, of a creeping ſpreading growth, delight in a moiſt ſoil, but will ſucceed in any common garden earth, and either in an open or ſhady ſituation; and one ſmall bed or two may be ſufficient for the ſupply of a family, or in proportion as wanted for larger ſupplies.

The plants are eaſily raiſed, either by ſlips of, or parting the roots in ſpring or autumn, or by ſlips or cuttings of the young ſhoots in ſpring and ſummer, and planted in a bed or border a foot aſunder; they will quickly grow and increaſe exceedingly, for a full crop the ſame year: or for immediate ſupply, ſome full plants may be procured and planted as above in ſpring or ſummer: all of which will continue ſeveral years: or when they appear of a decaying or dwindling ſtate, make a new plantation as above.

They may be gathered for uſe, the young ſhoots and leaves together, in ſpring, ſummer, and autumn, as wanted; and in June, July, &c. gather a quantity to dry and keep for winter: or for diſtilling, they are of proper growth for that purpoſe, when they are beginning to flower in ſummer, being then in fulleſt perfection; cutting the ſtalks cloſe to the bottom.

All the culture theſe plants require, is to keep them clean from weeds all ſummer; and in autumn cut down the decayed ſtalks, clear off all weeds, then, or in the ſpring, ſpread a little fine earth thinly over the beds.

PURSLANE.

PURSLANE.

In the Botanic ſyſtem, Portulaca (Portulaca *oleracea*), *Oleraceous, or Pot-herb Purſlane.*

PURSLANE is a ſmall tenderiſh annual plant, of ſix or eight inches growth, with fleſhy ſtalks, and thick ſucculent wedge-ſhaped oval leaves, of a moiſt cold quality, uſed as a ſpring and ſummer ſallad herb, and in ſome culinary purpoſes; the young tops and leaves together are the parts uſed; obtained for uſe from March, April, or May, till the end of autumn, if wanted; raiſed from ſeed in ſpring and ſummer, ſowed to remain, a ſmall crop every month till Auguſt, if required to continue a regular ſucceſſion, as the plants ſoon run to ſeed, ripening it in ſummer and autumn, and then wholly decay.

The varieties of purſlane are,

Golden purſlane.
Green purſlane.
Broad-leaved purſlane.

Any or all of theſe varieties may be cultivated where purſlane is required, which, being of a ſucculent fleſhy nature, is a deſirable herb to mix in ſummer ſallads, and to uſe in ſome culinary purpoſes, as before obſerved.

Theſe are tenderiſh plants, which, if required early, need the aſſiſtance of a hot-bed; but from April till the end of ſummer will grow in the open ground.

They are raiſed from ſeed ſowed in ſeveral ſmall crops in ſpring and ſummer, generally every month or ſix weeks, if a conſtant ſucceſſion of young plants are required all ſummer, as they ſoon become old and ſhoot for ſeed;—the firſt ſowings may be in February, March, or April, according to the time the plants are required, and ſo continue a ſmall ſowing every month till Auguſt, or as long in the ſummer as the plants may be wanted; the plants of each crop remain where ſowed, and do not require thinning.

If

If required early for ſpring uſe, ſome may be ſowed in a ſlender hot-bed in February or March, in drills four inches diſtance; and when the plants come up admit air, and give occaſional moderate waterings; and may begin gathering them for uſe when from two or three to five or ſix inches growth.

But in April or May, and during the ſummer months, they may be ſowed in the open ground in beds or borders of light dry earth; in April ſow in a warm border, afterwards may ſow in any open ſituation; only a ſmall portion each time, and generally in ſmall drills ſix inches diſtance, not more than an inch deep, giving neceſſary waterings in dry weather; and when the plants are from two or three to five or ſix inches high, they may be gathered for uſe, cutting the young tops and leaves together.

The plants remaining where ſowed require no other culture than occaſional weeding and watering.

To ſave purſlane ſeed, leave ſome plants of the April or May ſowing in the open ground, or ſow at that ſeaſon to ſtand for that purpoſe; they will ſhoot and ripen ſeed in July, Auguſt, &c.

POTATOE.

A Species of Solanum or Nightſhade (Solanum tuberoſum*), Tuberous-rooted Nightſhade, or Potatoe.*

THE POTATOE is a very valuable eſculent for conſiderable culture in gardens and fields, for its large fine eatable roots, moſt uſeful and profitable all ſeaſons of the year for the table, but in greateſt perfection in autumn, winter, and ſpring, from Auguſt, September, or October, till April or May, good both to boil, bake, roaſt, and various culinary preparations, conſiſting of ſeveral varieties, all hardy perennial plants, perpetuated and raiſed always by the roots (the potatoes) planted in the ſpring, either whole, or rather cut into ſeveral parts, each furniſhed with one or more eyes, in rows two or three feet by eighteen inches aſunder, and four or five

five inches deep; and each ſet produces a large root-cluſter of young potatoes the ſame year, proper for uſe in their ſmaller growth in June, July, Auguſt, &c. acquiring full ſize in October, then being wholly digged up and houſed keep good all winter till April or May aforeſaid, when they aſſume a growing ſtate, and become of inferior worth, though will continue eatable till the arrival of early young potatoes in June.

The varieties of potatoes are,

Early dwarf potatoe.
Red round potatoe.
Large red Lancaſhire potatoe.
Red oblong oval potatoe.
White round potatoe.
White oblong oval potatoe.
White kidney potatoe (flat kidney-ſhaped).
Large oblong, white and red kidney potatoe, called in the London markets, red-noſed kidney, being generally red at the end; much cultivated for its prolific production.
Round purple potatoe.
Great cluſtered American potatoe (for feeding cattle).

All the varieties of potatoes in their growth produce numerous ſpreading root fibres, to which are attached many knobbed tubers, growing to a large cluſter of potatoes a few inches within the ground, or ſome near the ſurface, and ſhoot up above with herbaceous ſtems a yard high, furniſhed with dark green winged leaves, and white and purple flowers, ſucceeded by roundiſh green fruit, called potatoe-apples, of no material value for uſe, only ſometimes a few for pickling in autumn, and to produce ſeed occaſionally, ripening about September or October, and by which potatoes are ſometimes raiſed, when deſirous of obtaining new varieties, or to renew or improve the particular kinds for future ſets, after a degeneracy by long culture in the uſual method; but, except in theſe caſes occaſionally, the general crops are always raiſed by ſets of the roots, meaning the potatoe, either cut or whole, which are hereafter explained.

In

In the above different varieties, the early dwarf ſort is proper to cultivate in ſmall or moderate ſupplies for the earlieſt ſummer crop; any of the others, except the American kind, may be raiſed in full crops for the table, but preferably the red ſorts, and ſome of the round and oblong white potatoes, though the large rough reds are ſuperior to all for goodneſs of eating in their fine mealy texture and rich flavour; but the large white and red oblong ſort, called the red-noſed kidney potatoe, and the large white round, being more prolific, are now moſt commonly cultivated for the main crops in the potatoe-grounds in the neighbourhood of, and many miles round London, as well as in many other diſtant parts, for the ſupply of the markets of that metropolis in particular, where at preſent the fine large red ſorts, which formerly and deſervedly greatly prevailed, are ſcarcely to be ſeen, and to which I would give preference to all the others to cultivate in principal ſupplies for the ſervice of a family; but would alſo admit a proportionable ſhare of the other principal varieties in all places where there is proper ſcope of garden or field land; for potatoes being the moſt generally uſeful and profitable eſculent vegetable either of roots or others, they ſhould be cultivated in conſiderable quantity, according to the extent of the ground, both for private uſe and for ſale in the markets, as hardly any other kitchen eſculent admits of ſo many profitable ways of cooking, or continues ſo long in good perfection for uſe; they being planted in the ſpring acquire full growth by October, but admit of taking up ſome in their young ſtate in ſummer, when the ſize of walnuts or common eggs, in June and July, and in their more advanced ſize, a few at a time only as wanted; as when taken up in their immature growth they will not keep; but when full grown in October, being taken up and houſed, will keep good many months.

They will thrive in any common lightiſh rich ground of a garden or field; or are generally very proſperous and productive in a moderate light or ſandy loam, but do not thrive well in ſtrong clayey, gravelly, or ſtubborn

born or wet land; they however will ſucceed in any pliable mellow ſoil, where other crops either of kitchen-garden plants, or of graſs and corn, &c. grow in tolerable perfection; and if the ground is augmented with a ſupply of lightiſh hollow dung, eſpecially if poor land, it will be of eſſential advantage.

The ſeveral varieties in general culture are always propagated or raiſed by planting ſmall or middling potatoes whole, or large ones cut into four or ſeveral more pieces, each furniſhed with one or more eyes, which I would preſer for ſets rather than whole roots, and which is of material conſideration, as the moſt profitable method where large quantities are to be cultivated; and the ſeaſon for planting them is March, April, and May; but potatoes are alſo ſometimes raiſed from ſeed ſowed in the ſpring, which, however, is only practiſed occaſionally, when deſigned to try for new varieties, or to improve the ſorts for future ſets by roots, as before intimated, and explained hereafter; ſo that for raiſing the general annual crops, always provide root ſets of whole or cut potatoes for planting.

Generally for ſets to plant, procure a proper ſupply in due time in the ſpring, of the fineſt moderately large potatoes of the beſt varieties of the ſorts intended, and keep them in the dry, cloſely under cover from wet and froſt, &c. ready in good condition for planting at the proper ſeaſon.

The ſeaſon for planting potatoes is principally March and April for the main crops; obſerving in moderately dry ground may begin planting any time in March; but if rather a wettiſh ſoil, or a cold or wet ſeaſon, defer it till the middle or towards the latter end of that month, leſt the ſets rot in the ground, and may be continued till the middle or end of April, or, on particular occaſions, till May; or for early crops, a ſmall or moderate portion may be planted in February of the early kinds, in a dry warm ſituation, or a few of the early dwarf ſorts planted in a hot-bed in January or February for the earlieſt production in April or May, &c. However, ſeldom begin planting the great crops before March and beginning of April.

For

For the main crops of potatoes, allot a lightiſh moderately-dry mellow pliable ground where the ſituation admits; and if convenient to augment it with dung, dig it in a moderate ſpade deep, or if for large quantities in fields, plow it that depth, burying the dung in the furrows; and if the ground, either dunged or not, could be conveniently ridge-digged or rough ploughed a month or two or more before the time of planting, and then turned over again, it would greatly improve it for the advantage of the crop; however, at any rate let the ground be well digged or ploughed at the proper planting ſeaſon; then, being provided with a proper quantity of the beſt moderately large potatoes for ſets, as above, cut them into four or more pieces, each having one or more eyes, from which to emit roots, &c. begin the principal planting towards the middle of March, and continued, as required, till the middle of April, or even to the latter end of that month, or beginning of May, if omitted before, or ground not ready: planting them either with a thick ended dibble, in rows two feet or two feet and a half aſunder, by fifteen or eighteen inches diſtance in the rows, and three to four or five inches deep, one ſet in each hole; or by drawing drills with an hoe or plow the above diſtance and depth, placing the ſets in the drills: likewiſe ſometimes for large quantities in fields, if light mellow land, they are planted alſo in ploughing the ground, laying them in the furrows after the plow, and by which method dung is ſometimes thrown into the furrows under or over the potatoes, covering in with the earth of the ſucceeding furrows, having the rows at the diſtance and depth above-mentioned; and ſometimes, the ground being digged or ploughed, they are holed in with a ſpade, one perſon digging out a ſmall ſpit or cavity, another drops in a potatoe ſet, which is covered in with the ſpit of the next opening.

There is ſometimes another method of planting occaſionally practiſed in wettiſh grounds, which is digged in beds four feet wide, leaving two feet alleys between; the potatoe ſets placed on the ſurface of the beds, then the alleys are digged, and the earth ſpread over the ſets

four or five inches deep: or ſometimes in rank green ſward ground divided into beds as above, with alleys the ſame width, the potatoes are placed on the ſward without digging; then dig the alleys, and turn the ſward downward over the ſets the depth as above; but theſe methods of planting are not propoſed for general practice.

After the potatoes are planted, obſerve, that as they are ſlow in coming up, numerous weeds often appear before them, in which caſe either run the ground over with a common or Dutch hoe, or in fields with an horſe hoe or harrow, examining, however, firſt that the potatoe ſhoots are not advanced near the ſurface within the reach of the hoe, and if they are, be very careful to cut only between the plants, or defer it till the plants appear; thus continue the hoeing once or twice, according as weeds advance, looſening the earth alſo about the potatoes; and if ſome earth is hoed up to the bottom of the ſtems on both ſides of the rows of plants, it will greatly encourage the growth, and the ſtems as far as earthed will root therein, and encreaſe in the produce of the roots.

In the middle or end of June, or in July or beginning of Auguſt, ſome of the forwardeſt potatoes will furniſh young roots to begin taking up ſome for uſe, if required; but at theſe ſeaſons ſhould dig up only a few at a time, juſt for preſent eating; as being yet in their infant ſtate they will not keep good above two or three days, eſpecially thoſe in June or July; but in Auguſt and September will be conſiderably encreaſed in ſize, when they may be taken up in large ſupplies, not yet however for keeping, till the latter end of October, when the whole will be at full growth, and ſhould then be all digged up to keep for winter, &c.

When potatoes are to be taken up for uſe, it ſhould be performed generally with proper potatoe forks, as ſpades would cut the roots; or in fields where large quantities, they are ſometimes ploughed up; obſerving firſt to cut down the haulm or ſtalks of the plants near the ground; then, either by digging with forks or ploughing, proceed by digging, &c. all the ground regular

gular by the rows, turning the roots clean to the top, having baſkets into which to gather them as turned up.

The main crops of full grown roots digged up in October and beginning of November for keeping ſhould be cleared from earth, and, when dry, be houſed in ſome dry cloſe lower apartment, or dry cellar, or where convenient; and if ſome dry ſand is ſcattered among them, they will keep the better, covering the whole cloſe with dry ſtraw, a foot thick, to exclude the air and damps; and they will thus continue good all winter till April or May; obſerving occaſionally, and towards ſpring, to turn the potatoes over, to pick out ſuch as decay, and to break off any ſhoots emitted from them.

The large cluſtered American potatoe being too ſtrong taſted for the table, they are only proper chiefly to cultivate for cattle, planting them in rows a yard diſtance.

Early Potatoes.

To have early potatoes, plant ſome of the early dwarf ſorts in February or beginning of March, in a warm dry ſituation, in rows two feet aſunder, by one foot in the rows; or ſome may be planted in frames, to have ſhelter of glaſſes to forward them; they will come in for uſe in a ſmall growth in June or July in moderate ſupplies.

But to have ſome new potatoes as early as poſſible, a few may be planted in a hot-bed in January or February, making a hot-bed for one or more three-light frames and glaſſes, earthed ſix or eight inches, plant ſome early dwarf kinds fifteen or eighteen inches diſtance; and when they come up admit air every day, give occaſional waterings; and when the heat of the bed declines, apply an outſide lining of hot dung, to ſupport a moderate heat till April or May, when, or early in June, the young potatoes will be fit for uſe.

To ſave Potatoe Seed for ſowing to raiſe new Varieties, &c.

As potatoes are propagated principally by cuttings of the roots, the ſeed is not required, except occaſionally, when deſigned to try for new varieties, or when, by long

long culture, the old ones degenerate, to raiſe a ſupply of new to improve the kind; and for which the ſeed ripens in autumn, which gather and preſerve till March or April, then ſowed in a bed of rich earth; and the plants to grow till the ſtalks decay in autumn, then take up the roots, ſelecting the beſt for planting next ſpring, as directed in the general culture.

RAPE.

A Species of the Braſſica, or Cabbage Tribe (Braſſica Napus), *or Wild Navew or Rape.*

RAPE is a biennial plant of the cabbage family and open colewort tribe, cultivated in gardens principally as a ſmall ſallad herb to eat young of a few days old, while in the ſeed leaves, being of a moderately warm taſte, to uſe with creſſes, muſtard, &c. in winter and ſpring ſallads, or at any ſeaſon as may be required; alſo to cultivate in fields in large quantities, to attain full growth to feed cattle in winter, likewiſe in conſiderable field crops to produce ſeed from which to make rape oil; and for all of which is always raiſed from ſeed, ſowed thick for ſallads in ſpring or any ſeaſon of the year, every week or fortnight, to have it young; but for field culture, for fodder, and ſeed, is commonly ſowed in ſummer, either to remain, and hoed eight, ten, or twelve inches diſtance, or occaſionally for tranſplanting a foot aſunder, acquire full growth by winter and ſpring following, either to feed off, or left to produce ſeed in autumn, then they wholly die.

One principal ſpecies, viz.

(Napus ſylveſtris) wild nape, navew or rape.

This plant for garden culture, being commonly admitted as one of the ſmall ſallad herbs, to uſe young with creſſes, muſtard, &c. as before obſerved, it ſhould generally be ſowed along with thoſe ſorts in ſpring, ſummer, or any ſeaſon of the year when ſmall ſallad is wanted, each ſort ſowed ſeparate in flat ſhallow drills very thick, all to remain where ſowed, and not thin-

ned, and to be gathered for uſe while quite young in the ſeed-leaves, of only a few days or a week old; and as it ſoon becomes too old for that uſe, the ſowings ſhould be repeated every week or fortnight, to have a conſtant ſucceſſion of young, as directed for *creſſes* and *muſtard*.

When deſigned to raiſe large ſupplies of rape in fields to obtain full growth for cattle, and the production of ſeed, it ſhould generally be ſowed towards the middle of June, ſix to eight pounds of ſeed per acre, ſowed broad-caſt, and harrowed and rolled in; and when the plants have leaves one or two inches broad, hoe and thin them about twelve inches diſtance, keeping them clean from weeds by repeated occaſional hoeings, cutting out the plants where before left too cloſe.

They will thus encreaſe conſiderably in growth, either to feed cattle in winter, or kept as a reſerve for ſpring, in caſe of ſevere weather; and what are not then eaten by cattle will furniſh a profitable production of ſeed; or the tops partly fed off by the cattle, then left to ſhoot to ſtalks, they will afford a good crop of ſeed, ripening in July or Auguſt; this is a valuable commodity from which to extract rape oil, and is afterwards made into cakes for oxen.

To ſave rape-ſeed for ſowing, &c. leave in the ſpring a ſufficiency, as may be required, of the former year's plants, they will ſhoot to ſtalks, and produce plenty of ſeed ripening in autumn.

RAMPION.

In the Botanic Syſtem, Campanula Rapunculus; *Rapunculus or Rampion.*

THIS is a ſmall biennial plant, with a ſmall fleſhy root, and ſpear-ſhaped oval leaves, and the root is the eatable part, for uſe in autumn and winter till the ſpring to boil, &c. raiſed from ſeed annually in March or April, one or two ſmall crops, to remain where ſowed, and the plants thinned, which come in for uſe the

the ſame year, and continue good till the ſpring, then run for ſeed, ripening it in autumn, and decay.

There is but one ſpecies, viz.

(Rapunculus), or rampion.

This plant, being at preſent in but little requeſt, is not much cultivated: however, as the roots boiled eat very agreeably, a ſmall crop may be raiſed for variety at table; eaſily raiſed from ſeed; and, as being a biennial, dying the ſecond year, muſt be ſowed every ſpring, to obtain ſucceſſional annual crops.

One or two ſmall crops, ſowed annually in ſpring and ſummer, will furniſh enough for the ſupply of a family.

Sow the ſeed in March or April, in one or more beds of light earth, or in a ſomewhat ſhady, but open expoſed border; either ſowed broad caſt, or in drills ſix inches aſunder; the plants to remain where ſowed; and when they are of one or two inches growth, in May or June, thin them five or ſix inches diſtance, and cleared from weeds. The roots will grow to proper ſize to begin drawing, ſome for uſe in Auguſt and September.

Another ſmall crop may be ſowed in May or June, for a ſucceſſional ſupply in winter and ſpring.

To ſave ſeed, leave ſome year-old plants in the ſpring; they will run and produce plenty of ripe ſeed in autumn.

MELON.

In Botany, a Species of Cucumis, *or Family of Cucumber,* (Cucumis Melo) Melo, *or Melon.*

THE MELON is the moſt tender exotic of our kitchen gardens, an annual plant of long ſlender trailing growth, remarkable for producing large delicious fruit, ripening in perfection in ſummer and autumn, from May or June till October or November, of various different ſizes, ſhapes, &c. as round, oval, oblong, depreſſed, ribbed, netted, carbuncled, ſmooth-rinded, red-fleſhed, green-fleſhed; all of which are valued

as choice deſert fruit, for their peculiar rich muſky flavour, when fully ripe; the young green fruit alſo for mangoes; and the plants are always raiſed from ſeed ſowed in winter for early, and ſpring for the main crops; all in hot-beds; firſt in ſmaller beds, to raiſe the plants two, three, or four inches growth, for tranſplanting into others of larger dimenſions, to remain for fruiting, as being very tender plants, natives of hot countries, cannot be raiſed in England without the aid of artificial heat of dung or bark hot-beds, under frames and glaſſes; or, for late crops, alſo under hand-glaſſes and oiled paper: arrive to full growth the ſame year, ripening the fruit and ſeed; and wholly decay in autumn, or beginning of winter.

Many varieties of the fruit, viz.

Early Romana melon.
Cantaleupe melon.
Rock Cantaleupe melon.
Black rock Cantaleupe melon.
Silver Cantaleupe melon.
Orange Cantaleupe melon.
Oblong ribbed melon.
Netted ribbed melon.
Netted plane melon.
Green ſmooth melon.
Green fleſhed melon.
Large white melon.
Small Portugal melon.

Of theſe different varieties the Romana is the earlieſt and moſt plentiful bearer, the fruit ſmall, but very good; but the Cantaleupe is eſteemed ſuperior to all for its richneſs of flavour; a large roundiſh, depreſſed, deeply-ribbed fruit, ſingular in its rugged carbuncly rind, though the plants are generally but indifferent bearers: it however is moſtly preferred for the main crops in noblemen and gentlemen's gardens; the common ribbed melon is a good fruit, and a plentiful bearer, for a general ſummer crop; the ſmooth green-rinded and green-fleſhed melons are alſo very fine; but of the melon there are many other varieties of leſs note; and

the

the above mentioned are the ſorts in moſt eſteem for culture.

They are exotics of moſt tender quality, requiring to be raiſed in hot-beds, under frames and lights, hand-glaſſes and oiled paper frames, as before intimated, and require the protection of theſe ſhelters conſtantly till the end of June or July; or even, occaſionally, all ſummer, to defend the principal roots and main ſtem in unfavourable weather, eſpecially in great rains, as without that protection they ſeldom ripen good crops of fruit in this country; though in fine warm dry ſummers, the late crops planted in April or May, in hot-beds under hand-glaſſes, and the vines of the plants permitted to run out from under the glaſſes over the ſurface of the bed, they often produce large crops of fruit upon the extended runners: but if it proves a cold or wet ſeaſon, they do not ſucceed well, unleſs the bed and fruit are occaſionally ſheltered, or as many of the fruit as poſſible turned in under their own glaſſes, or ſpare ones placed over thoſe at a diſtance: but in beds under oiled paper frames, kept conſtantly over the bed and plants from May or June, to the end of ſummer, fine crops of melons are generally obtained.

Melons, both in their general growth and fruiting ſtate, are impatient of conſiderable moiſture, either in the earth or falling wet, of rain or immoderate watering; for exceſſive moiſture is apt to rot the roots or main ſtem of the plants, and much humidity prevents the young fruit from ſetting kindly, cauſing it to change yellow and decay; and much wet to the ripening fruit ſpoils the flavour.

In the full culture of melons, they are commonly raiſed in three principal crops in the following order.

1. Early and general crops, in frame hot-beds, ſowed in January, February, or March, to plant out when in the rough leaf, in February, March, &c. into large hot-beds, under frames, to remain for fruiting; in which thoſe raiſed early, about January or February, ſometimes produce ripe fruit in May and June, &c. though are ſometimes obtained ſo early as April; but for a more certain good crop, February or March is

a more ſucceſsful ſeaſon to begin ſowing: to ridge out in March and April; will produce in good perfection in July, Auguſt, and September.

2. Hand-glaſs crops, ſowed in frame hot-beds the end of March and in April, for ridging out in hot-beds under the aforeſaid glaſſes in April and May, to produce melons in autumn, about Auguſt, September, and October.

3. Oiled paper frame crops; the plants raiſed in frame hot-beds, as for the hand-glaſſes to plant out in hot-bed ridges, firſt under hand-glaſſes, as above, till the plants fill the ſaid glaſſes; then theſe removed away in May or June, and the paper frames placed over, and in which good crops of melons are generally produced in autumn, July, or Auguſt, till September or October.

Each of which methods is explained under its ſeparate head.

Hot-beds for raiſing melons are principally made of horſe-ſtable dung, as obſerved for cucumbers; and occaſionally by tanners-bark hot-beds, in very good perfection, as theſe beds retain a long regular moderate heat.

But as horſe-dung hot-beds are generally the moſt eaſily obtained in all places, they are the moſt commonly uſed for this purpoſe; and of which provide and prepare a proper quantity in due time, to have it in proper order for making the hot-beds; obſerving as adviſed for the cucumber beds, to have that which is freſh, or that abounds in a lively moiſt ſteamy heat, the long and ſhort together, and forked up in a mixed order in an heap for a week or fortnight or more, to ferment and prepare to an equal temperature, and turned over once or twice to diſcharge the rank ſteam and burning quality before made into a bed, which will thereby acquire a more regular and durable moderate heat: and have alſo a ſufficiency for occaſional linings to the ſides of the bed when the original heat declines.

Have alſo proper ſupplies of good rich earth prepared in an heap in autumn, or ſome conſiderable time before uſde for the hot-beds: or for this purpoſe a compoſt of

good

good freſh light ſurface loam, from a paſture-field or common, half, or two thirds, the reſt of rich garden mold, and thoroughly rotten dung of old hot-beds, or part rotted cow-dung, all well blended together in an heap or long ridge, in an open ſituation, expoſed to the ſun and air, to enjoy all beneficial improvement therefrom; turning it over two or three times to break and incorporate the parts effectually; and for early work generally lay ſome in a covered ſhed two or three weeks to dry of a proper temperature, ready for the hot-bed.

And as to ſeed, be careful to have that of the fineſt well-flavoured fruit; and if this is three or four years old the better, as the plants of new ſeed grow too luxuriant, without ſetting fruit ſo ſoon and freely as that of old ſeed, which, aſſuming a moderate growth, generally are more diſpoſed for fruiting.

Early and general Crops by Hot-beds under Frames and Lights.

Where melons are required as early as poſſible, ſome ſeed may be ſowed the beginning, or any time in January, in a hot-bed, to raiſe the plants for ridging out in a large hot-bed, under frames, the end of the ſame month or in February: but for a more certain full crop, February and March is a more ſucceſsful ſeaſon for ſowing, to ridge out in thoſe months or in April, eſpecially for the main ſummer production; or, if ſowed in April to ridge out in May, they will furniſh a good full crop in autumn.

Agreeable to theſe hints, being furniſhed with ſome good Romana and Cantaleupe melon ſeed, or any other deſirable ſorts, make a hot-bed for ſowing the ſeed and raiſing the plants, either a ſmall hot-bed for a one-light frame, as directed for cucumbers, or, if any cucumber hot-bed is now in cultivation, that will do, as the ſame mode of culture at this time will ſuit both; and in which ſow the ſeed either in the earth of the hot-bed, or in ſmall pots plunged therein: and when the plants are come up two, three, or four days, while in the ſeed lobes, half an inch broad, prick them in ſmall pots, only two plants in each, and plunge the pots in the earth of

the hot-bed; admit air every favourable day more or leſs, by tilting the glaſſes behind, from a quarter or half an inch to an inch or more high, in proportion to the heat of the bed; ſhutting cloſe by degrees before evening: give occaſional light waterings when the earth appears dry; cover the glaſſes every evening with mats, and uncover in the morning; and ſupport a good moderate heat in the bed by occaſional linings; obſerving nearly the ſame management as directed for early cucumbers, till the plants are raiſed with two or three rough leaves, two or three inches broad, then are of proper growth for ridging out into the fruiting hot-beds: obſerving in this advanced ſtate of growth, when they begin to puſh the firſt runner buds, to pinch or cut off the top, to promote ſtrength below, and to encourage production of lateral runners for bearing.

Then obſerve, relative to the ridging-out hot-bed for their final tranſplanting, where they are to remain for fruiting, this ſhould be made a week or fortnight or more before, to be preparing to a moderate temperature of heat by the time the plants attain the above proper ſtate of growth for ridging out.

Make this bed for one, two, or more, three-light frames, wholly on the level ground, about three feet and half high in dung: ſet on the frame and lights, and in a week, ten or twelve days, or more, when reduced to a moderate lively heat, as directed for the cucumbers, earth the bed with the proper ſoil before explained; laying it firſt in a ſmall round heap or hill, under the middle of each light, twelve or fifteen inches thick, earthing the other parts only about three inches at this time till the heat is become quite moderate; then when the hills of earth are warm, put in the plants, removing them from the pots with the balls of earth about the roots, and plant two in the middle of each hill, though of the Cantaleupe ſort, one plant is generally ſufficient; give a little water to the earth, about the extreme roots and fibres; and then ſhut down the glaſſes cloſe to draw the heat, afterward raiſed at top half an inch or an inch or more, to give vent to the ſteam, and to admit air every day, or occaſionally of nights,

nights, in the early ſtate of the bed, if a ſtrong ſteam and great heat; but at which time, or when a ſharp cutting air, defend the part where the glaſſes are raiſed with a mat ſuſpended from above; but in a moderate heat keep them moſtly cloſe every night; cover the glaſſes every evening after ſun-ſet with one or two mats thick, and uncovered in the morning.

In early hot-beds, in winter or ſpring, it will be beneficial, ſoon after planting, to lay dry ſtraw litter round the ſides, a tolerable thickneſs, to defend the bed from driving rains, ſnow, and cold piercing winds, to prevent their chilling and cauſing a ſudden decay of the heat, which often is the caſe when this precaution is omitted, and thereby proves greatly detrimental to the plants, or ſometimes the loſs of the crop; but, by the above protection at an early ſeaſon to guard the bed, the heat thereof will be preſerved regular, and of longer duration.

Obſerve, according as the bed becomes of a mild heat, to introduce more earth to be applied round the hills, laying it firſt towards the ſides of the frame till warm, then put round the hills of plants, preſſing it gently down cloſe; and thus apply it by degrees in two or three earthings till the whole is earthed an equal depth with the hills of twelve or fifteen inches thick, and in which depth of earth there will be proper ſubſtance to nouriſh the plants and fruit effectually without much watering, eſpecially if a loamy ſoil; for melons ſhould have but a moderate degree of moiſture, as too much is apt to rot the main ſtem, cauſe the young ſetting fruit to decay, and the full grown to ripen with an ill flavour: ſo that where there is ſome conſiderable depth of mold as above, they will want watering but ſeldom.

When the plants are puſhing the firſt runner-ſhoots, they ſhould now, if not done before, be ſtopped at the firſt joint, by pinching or cutting off the tops of the ſhoot-buds, to promote bottom ſtrength, and an increaſed ſupply of two or three principal runner-ſhoots to each plant; and theſe, when three joints long, may alſo be ſtopped or pinched at the third joint, to obtain

a further increaſe of lateral ſhoots in proper abundance to fill the bed with an expanſion of bearing runners; and according as theſe advance in growth, train them out in regular order in different directions.

Watering will ſometimes be neceſſary, in very moderate ſupplies, when the earth is dry, giving it generally at a diſtance from the head of the plant, leſt it rot the main ſtem; for, as before remarked, melons ſhould have but a moderate degree of moiſture, eſpecially when fruiting; as alſo when the fruit of full growth is ripening, as too much is a mortal enemy to the young fruit, prevents its ſetting freely in proper abundance, cauſing it to change yellow and decay, and the full-grown is retarded in ripening, and debaſes its flavour: therefore always water with a degree of moderation, but more ſo at theſe periods of ſetting and ripening of the fruit, and applied with care, as above, at ſome diſtance from the main ſtem of the plants: obſerve, in hot ſun-ſhine weather, never to water in the heat of the day, but generally before ten, or after two o'clock.

Admiſſions of air will be requiſite every moderate day, leſs or more, by tilting the glaſſes behind, one, two, or three inches, in proportion to the heat of the bed, and temperature of the external air, advanced period of the ſeaſon, or as the warmth of the day encreaſes and decreaſes; always more freely in calm, ſunny, mild days, than when cloudy, foggy, froſty, or ſharp weather, windy, &c. ſhutting the lights gradually cloſer towards afternoon, or when the weather changes ſeverely ſharp, and wholly ſhut cloſe before the evening, and kept cloſe every night, eſpecially in the advanced ſtate of the bed.

Continue covering the glaſſes every evening with garden mats, ſoon after ſun-ſet, one, two, or three mats thick, according to the ſtate of heat in the bed; and uncovered in the morning about ſun-riſing, or half an hour, or hour or more after, according to the ſeaſon and temperature of the weather; generally continuing this covering more or leſs every night till the beginning or middle of June.

In warm ſunny days, if the heat through the glaſſes appears too great for the plants ſo as to make them flag

their

their leaves, give a ſlight ſhade of a thin mat, or a little looſe litter, from about eleven to two o'clock.

Examine the heat of the bed in due time, both in its early and advanced ſtate, to ſupport it in a proper temperature: that when the heat begins to decline conſiderably, renew it as ſpeedily as poſſible by applying a lining of hot dung to the ſides, fifteen or eighteen inches wide, and three or four inches higher than the dung of the bed, to allow for ſettling; generally lining the back part firſt, the other in a week after; or ſometimes both at once, when the heat of the bed is conſiderably decayed: ſeldom raiſing theſe linings but little higher than the dung of the bed, leſt their ſtrong heat burn the earth within the frame, or ſteam thereof kill the plants; and to prevent the latter as much as poſſible, commonly lay ſeveral inches of earth at top of the lining, which will confine the ſteam and heat below more effectually; being careful, however, that the linings do not heat too violent to communicate a burning heat to the bed and earth; or, when that caſually happens, remove the upper parts of the lining, or wholly, for a day or two, then applied again more moderately: thus, by occaſional linings, applying new as the old decays, ſupport the heat of the bed in a conſtant, regular, moderate degree till June, very eſſential both to the growth of theſe tender plants, and to promote a plentiful ſhew of fruit, and their ſetting and ſwelling freely in a regular growth; for without this artificial aid of a due bottom heat in the bed, the plants will make but little progreſs in fruiting.

When the young fruit is advancing in bloſſom, keep up a good heat as above; and, further, aſſiſt their ſetting by impregnating the female with the anthera powder of the male bloſſom, as directed in the culture of early cucumbers; and, according as the fruit is ſet, you may either occaſionally pinch off the end of the runner at the third joint above, or turn the end of the runner inward, to direct the nouriſhment more effectually to the young fruit, to make it ſet and ſwell more freely in a regular growth; obſerving, at the principal fruiting time, to give but very little or no water, for the reaſons

before explained: and according as the fruit ſets, place a piece of tile under each to keep it dry, and from rotting by the moiſture ariſing immediately from the earth. One or two well-ſet good fruit on a vine or runner is ſufficient.

If the plants grow very crowded in too numerous runners, cut away ſome of the weak and unfruitful thereof, in ſome regular order, and the extreme runners ſtopped.

Likewiſe obſerve, if about the middle or end of June, or in July, the plants crowd the frame conſiderably, and preſs againſt the glaſſes, the frame may be raiſed at bottom a few inches, to give a large ſpace above.

In the encreaſed well-advanced growth of the fruit, it is adviſable to turn them occaſionally, that they may grow regular, and ripen equally with its peculiar rich flavour; at which time give but little or no water, eſpecially if a good depth of mold on the bed, as much moiſture would retard the ripening, and protract its acquiring that rich flavour peculiar to thoſe delicious fruit.

Mature ripeneſs appears by the full ſize of the fruit, and in ſome ſorts changing yellow, and imparting a rich odour, or ſometimes by the foot-ſtalk at the joining at the baſe of the fruit cracking open round that part, as if ready to ſeparate therefrom: and at which ſigns of maturity gather the melons accordingly in due time, before they are over-ripe; generally performing it before the heat of the day, while the fruit is freſh and cool, and it will eat with a higher and more agreeable flavour; and commonly cut them with moſt of the foot-ſtalk adhering, or occaſionally with a ſmall part of the vine, when growing towards the extreme part thereof; and lay them in ſome dry cool room, till they are to be ſerved to table: if cut before too ripe, they will keep good ſeveral days, if required, on particular occaſions.

Generally continue the glaſſes conſtantly on the frames till the middle or end of June, but tilted two or three inches, or a hand's-breadth high, in hot weather, to admit a large ſhare of air; afterwards may be taken off occaſionally in dry days, but moſtly put on of nights, and

and all wet and unfavourable weather, to defend the plants and fruit.

To have ſucceſſional crops of frame hot-bed melons, ſome ſeed ſhould be ſowed at two or three different times, at a week, fortnight, or three weeks interval, in hot-beds as before directed, and the plants managed in the ſame manner, to tranſplant into large hot-beds under frames in March and April, &c. agreeable to the foregoing directions; and thereby a ſucceſſion of ripe fruit may be obtained in the early and ſucceeding crops, from May or June till September or October, &c.

In the late crops continue the glaſſes moſtly over the plants, and admit plenty of air in warm weather in ſummer; and in the middle or latter end of Auguſt line the bed and frame round with dry litter or waſte hay; and in the middle or end of September, if any late fruit remain, give a gentle lining of hot dung round the ſides, to promote a moderate bottom heat, to forward their ripening in October, &c. being careful to defend the plants from cold and rain by having the glaſſes kept on conſtantly, as above intimated.

Raiſing Melons in Hand-glaſs Hot-beds.

By hot-beds under hand-glaſſes good autumnal crops of melons are obtained in Auguſt, September, and October, by ſowing the ſeed in the ſpring in frame hot-beds, to raiſe the plants to about three or four weeks growth, till advanced with two or three rough leaves; then, in the middle or end of April, or beginning of May, ridged out into large hot-beds under the above glaſſes, placed at three or four feet diſtance; and in June the glaſſes raiſed upon props, for the runners to extend over the bed, and in which they often produce plentiful crops of fine fruit in favourably warm dry autumns.

The glaſſes for this crop of melons may be either the bell kinds or the leaded ſquares, or of both ſorts, as may be convenient.

For theſe crops any ſorts of melons may be cultivated; the Romana and common oblong ribbed netted melons, will generally bear the moſt plentiful crops; but may alſo have the Cantaleupe, or any other variety.

Begin

Begin the firſt ſowing the latter end of March or beginning of April, and the ſecond about the middle of the laſt mentioned month, all ſowed in any frame hot-beds of melons or cucumbers then in cultivation, or in default thereof, make a ſmall hot-bed for that purpoſe, ſowing the ſeed in either, as directed for the early plants; and when the plants are come up of two, three, or four days growth, while in the ſeed leaves, prick a quantity in ſmall pots, two in each, give a little water, and plunge the pots in the hot-bed; or ſome may be pricked in the earth of the bed, three or four inches aſunder, continuing the whole in this bed till they are advanced with two or three rough leaves, and when they ſhew the firſt runner bud, pinch off the top, to ſtrengthen the plants and prepare them for putting forth lateral ſhoots for bearing runners; then ſhould be planted out in the hot-bed ridges under the hand-glaſſes, in April and beginning and middle of May.

Theſe ridges for the hand glaſſes may be made both on level ground and in trenches; thoſe to be made the middle or latter end of April or beginning of May, as they will probably require lining in three or four weeks after, if cold nights prevail, it will be adviſeable to make them on level ground, to admit of lining the ſides, making them four feet and a half wide, length at pleaſure, and raiſed from two feet and a half to a yard high; and if two or more are intended, they may be made parallel to each other, four, five, or ſix feet aſunder, then earthed at top with loamy compoſt, or other good rich mold, eight, ten, or twelve inches thick, or firſt laid in hills that ſubſtance, four feet aſunder, along the middle, the other parts only three or four inches, but to be earthed afterwards by degrees equal with the hills; ſet on the glaſſes, and when the earth is warm, put in the plants, removed from the pots, &c. with balls of earth, planting two plants under each glaſs; give water, ſhut down the glaſſes, and ſhade them with mats from the mid-day ſun a few days, till they take root and grow; then tilt one ſide of the glaſſes a little in warm days to admit air, but kept cloſe down of nights, and cover the bed and over the glaſſes

glaſſes every night with large garden mats, which will be neceſſary to be continued till the middle of June; obſerving, if the bed was not fully earthed all over at firſt, let this be done ſoon, or in a week or two after, by degrees, or all at once, as may be convenient; and if in two or three weeks the bed fails in proper heat, and the weather is cold, line the ſides with hot dung, eighteen inches wide, and earthed at top; or if two or more beds have been made parallel one before the other, four or five feet aſunder, the ſpaces may be filled up with any waſte warm dung, and earthed at top ſix or eight inches thick, which will give a larger ſcope for the roots and the runners of the plants to extend in full growth.

In the advancing growth of the plants in the above hand-glaſs ridges, the principal culture is, to give them occaſional moderate waterings in dry hot weather, and proper admiſſion of air every warm day, by raiſing one ſide of each glaſs; and when the plants have completely filled the glaſſes, requiring room to extend, then in the beginning or middle of June, or ſooner, if fine warm ſettled weather, raiſe each glaſs upon three props a hand's-breadth high, and train out the runners of the plants upon the ſurface of the bed in regular order, and they will thus arrive to fruiting in June, July, and ripen in Auguſt, September, &c.

Or to make theſe hand-glaſs hot-beds in trenches, the end of April, beginning or middle of May, dig out the trenches a yard or four feet wide, and two feet deep, fill them with hot dung raiſed ſix or eight inches above the ſurface of the ground, earthed at top eight, ten, or twelve inches thick, applying earth alſo to both ſides, to make the ſurface ſix feet wide; place the hand-glaſſes along the middle, four feet diſtance, and put two plants under each, as directed above, giving the ſame management.

In the above ridges continue the glaſſes conſtantly over the plants, raiſing each glaſs in June upon three props, and to remain thus all ſummer, to defend the main roots and ſtem from the weather and great rains, which would ſometimes rot them; and obſerving, according as they ſet fruit, and it advances in growth, it

will be proper, in thoſe on the extended runners, to turn in ſome of the beſt neareſt fruit under their reſpective glaſſes, or others at a diſtance, may be covered with ſpare glaſſes, if any, eſpecially if cold nights or exceſſive rains prevail.

Likewiſe, if it ſhould prove a wet ſeaſon, it will be proper to defend theſe ridges occaſionally, either with large garden mats in great rains, or with oiled canvas cloths, or oiled paper frames, the latter to remain conſtantly; for without ſome protection in very wet cold weather very little ſucceſs will enſue, the fruit will not attain full growth, nor ripen with a good flavour, or many not at all.

Or if in the middle or end of Auguſt or beginning of September ſome ſpare garden frames and glaſſes are placed over ſome of theſe ridges, it will be a ſure and effectual protection from cold and wet, to have the fruit ripen ſooner and in better perfection in September, October, &c. and in cold nights the glaſſes may alſo be covered with mats.

Raiſing them under oiled Paper Frames.

By hot-bed ridges defended with oiled paper frames very fine late crops of melons are raiſed for ripening in autumn, about July, Auguſt, September, &c. the plants raiſed as for the hand-glaſſes, and ridged out firſt under ſaid glaſſes till June, when, having filled the glaſſes with their runners, the glaſſes are removed, and the oiled paper frames placed over the beds, to remain conſtantly all ſummer; or, in want of hand-glaſſes, theſe frames may be placed over the hot-beds at once as ſoon as the plants are ridged out.

Theſe paper frames for this crop are formed with thin ſlips of wood, as pan-tile laths, poles, or hoops, conſtructed in the manner of the roof of an houſe, or archways, ten feet long, four or five broad, and a yard high, with one or two pannels on one ſide made to open on hinges: then ſtrong white demy paper is paſted all over, and this, when dry, bruſhed over the outſide with linſeed oil; having them ready ſome time before, that the whole may be thoroughly dry for placing over the beds.

beds. See more particulars in making them under the article *Cucumber*.

For this purpoſe, firſt raiſe the plants, and make the hot-beds for ridging them out, and plant them therein, as directed for the hand-glaſs crop, two plants under each glaſs; and when theſe have filled the glaſſes in the end of May or beginning of June, remove the glaſſes, train out the runners of the plants regular, and place the paper frame or frames over the bed and plants, to which admit air occaſionally every warm day, either by opening one or both the ſide pannels of the frame a little, or if no pannels, raiſe the frame two or three inches at bottom; and give moderate waterings as occaſion requires when the earth is dry, but very moderately when fruiting, and the fruit ripening, as obſerved in the early frame crops.

Thus theſe paper frames, being rendered water-tight and pellucid by oiling the paper, completely defend the plants both from wet and cold, and afford conſtant agreeable ſlight ſhade from the ſcorching rays of the ſun, and at the ſame time admits its heat and light beneficially to the plants and fruit.

Obſerve, in hard or driving rains, it will be of advantage to ſpread large garden mats over the above paper frames, both to preſerve them as much as poſſible from being damaged, and to defend the bed more effectually in ſuch unfavourable weather.

When melons are required for mangoes, they ſhould be gathered while green, quarter or half grown, either of the late hand-glaſs crops or of the paper frames, in September, of ſuch as will not probably ripen.

Raiſing them in Bark Beds.

By tanners bark hot-bed melons may alſo be raiſed in good perfection, and ſometimes ſuperior, and with leſs trouble than in thoſe of dung, eſpecially for general crops, ſowed or planted in February, March, April; as the bark hot-beds are of more ſteady, regular, kindly, and moſt durable heat, not liable to heat violently or decline ſuddenly in a ſhort time, like the dung beds, will continue in a proper temperature two or three months,

months, and the degree of heat is remarkably well adapted for melons.

But thoſe bark hot-beds for this purpoſe muſt be made in a pit or caſe, for the ſhort looſe texture of the bark does not admit of forming it into a bed without that convenience; which may be formed either of poſt and planking, or brick and mortar work, the width of a large garden frame, to place at top, by one, two, or more in length, and three and a half or four feet deep in front, by five feet behind, ſunk one-third, or not more than half way, in the ground, or the frame-work for the glaſſes may be fitted to and fixed at top of the pit; and in which make the bark-bed a yard or three feet and a half deep, covered with a foot depth of earth for the reception of the plants.

Or a bark-pit may be formed of brick-work, with an internal fire-flue of two returns behind, in the upper part, above where the bark-bed comes, and in which to have moderate fire heat occaſionally in ſevere weather and cold nights, when the heat of the bark declines, will prove of greater advantage.

In theſe bark-pits, in February, March, or April, aforeſaid, have a bark-bed made of new tanners bark obtained from the tan-yards, forming the bed therewith the width and length of the pit, and a yard or three feet and a half deep, or ſo as to admit of a foot or fifteen inches depth of earth at top; or ſometimes, in an advanced time of the ſpring, March or April, the waſte bark from a hot-houſe mixed with one-third or half of freſh tan may be uſed; though a bed of entire new bark will be more effectual in producing a ſtronger and more durable heat; and when the bed is made, and the frames placed on, lay in ſome loamy or other good earth, as directed in the dung hot-beds, in which to ſow or plant; or if made of waſte bark of a moderate heat, may ſow or plant immediately in the bark.

But in want of a ſufficiency of bark wherewith to make a bed wholly thereof, a hot-bed may be made with bark and horſe dung together, either in a pit or without, as the dung will preſerve the bark in proper form;

form; and the bark added to the dung will ſupport a more durable heat than a bed entirely of the latter.

Then obſerve, it is generally proper to have melon-plants for this purpoſe ready raiſed in a common dung hot-bed to an eligible growth, with two or three rough leaves; and when the bark-bed is arrived to a proper heat, plant them as directed in the dung hot-bed culture of melons; or, in want of plants, you may ſow ſeed at once in the bark-bed, to remain; though this will be loſing time, and the advantage of the firſt main heat of the bed in the principal growth of the plants which they would otherwiſe beneficially receive, if previouſly raiſed as above, before planted therein; put on the glaſſes; and manage the plants as in the dung hot-beds, in regard to giving air, covering the glaſſes of nights, watering, ſhading, &c. and by which a good crop of melons may be expected.

To ſave Melon Seed.

To ſave good melon ſeed for future ſowing, it ſhould be procured principally from the fineſt rich flavoured ripe fruit of the ſeveral varieties, or of the moſt deſirable kinds, both of the early and main crops; and of which, according as the ripe melons are ſerved to table, and cut for eating, the internal ſoft pulp and ſeed together therein ſhould be reſerved, and the pulp afterwards waſhed from the ſeed; this then ſpread to dry a few days, or till fully hardened, then put up in papers, that of each variety ſeparate, the different ſorts properly labelled, and depoſited in boxes, drawers, or bags in a dry apartment.

This ſeed will retain its vegetative property ſeveral years; and, as was before remarked, it is moſt adviſeable to have that of three or four years old for ſowing, in preference to new ſeed, for the reaſon before explained.

SALSAFY.

SALSAFY.

In Botany, Tragopogon porrifolium *(leek-leaved Goat's Beard), or Salſafy.*

SALSAFY is a tap-rooted biennial plant with long narrow leek ſhaped leaves, and a long perpendicular ſmalliſh white root, which is the principal eatable part, for uſe in autumn and winter to boil; alſo the young ſhoots in the ſpring riſing from year-old roots are cut to boil and eat like aſparagus; is raiſed annually from ſeed ſowed in the ſpring two or three ſmall crops, to remain where ſowed, and the plants thinned ſix inches diſtance, they attain perfection in the roots the ſame year, ſummer and autumn, &c. and next ſpring, in the young ſtem ſhoots, when of a few inches growth; then what remains runs for ſeed, ripening in autumn, and the plants wholly decay.

There is but one ſpecies,

Leek-leaved goat's beard, commonly called ſalſafy.

This plant is not cultivated for any conſiderable conſumption, only in ſmall crops for occaſional variety at table.

It is raiſed from ſeed ſowed the middle or latter end of February and in March, for ſummer and beginning of autumn; but theſe being apt to run, ſow a larger crop in April and May for autumn, winter, and ſpring following, ſowing each crop in an open compartment, either on the ſurface, formed into four or five feet wide beds, and the ſeed raked in evenly, or in ſmall drills, ſix or eight inches aſunder, all to remain where ſowed, and the plants, when of a few inches growth in May or June, hoed and thinned ſix inches diſtance, and cleared from weeds.

The roots will be advanced to a moderate ſize in the early crop for drawing in July and Auguſt, the others will attain full perfection in September and October, and continue till the ſpring.

Some may be taken up in November, to preſerve in ſand, ready when the others are frozen in the ground.

In the ſpring the old roots remaining in the ground ſend

ſend up tender green ſtem ſhoots, ſome of which, when quite young, from three or four to ſix inches high, may be gathered to dreſs like aſparagus.

Save ſeed of ſalſafy by leaving ſome year-old plants in the ſpring, they will ſhoot and ripen plants in autumn.

SCORZONERA.

By the Botaniſts, Scorzonera hiſpanica, *Spaniſh Scorzonera.*

THE SCORZONERA is a biennial plant, with long narrow leaves, and long thickiſh downright root, which is the eatable part for boiling to eat like carrots; for uſe in autumn and winter; is raiſed from ſeed annually ſowed in ſpring in one or two crops, to remain, and the plants thinned ſix inches diſtance; they acquire perfection the ſame year in Auguſt, September, and October, continuing good till ſpring following, then ſhoot for ſeed.

There is only one ſort,

Common Spaniſh ſcorzonera.

This plant not being in any general eſteem, is not much cultivated, eſpecially for conſiderable crops, only a ſmall or moderate portion for occaſional uſe.

It is raiſed from ſeed ſowed in March, April, and May, but that ſowed before April is apt to run the ſame year; though ſow a ſmall portion in March for ſummer and early autumn ſupply, a larger crop in April for autumn and winter, and a ſucceſſional crop in May, to ſtand for ſpring; each ſowing perform in an open ſituation, either in ſhallow drills a foot diſtance, or broad caſt over the general ſurface, and raked in; and when the plants are three inches high in May or June, hoe and thin them ſix or eight inches aſunder, and keep them clean from weeds.

They will thus ſwell in the root, fit for drawing, ſome of the firſt ſowed in July and Auguſt, the others in September and October, and will then be at full growth.

In November dig up a quantity to preſerve in ſand for winter, the reſt may remain in the ground till the ſpring,

ſpring, February or March, then will ſhoot for ſeed; but if ſome are taken up in February before they ſhoot, the tops cut off and laid in earth or ſand, will keep longer for uſe.

To ſave ſeed of ſcorzonera, leave ſome old plants in the ſpring, they will run up with tall ſtems, and produce ſeed in autumn.

SKIRRET.

By the Botaniſts, Sium Siſarum, *Siſarum or Common Skirret.*

THE SKIRRET is a ſmall perennial plant, growing with winged and ternate leaves, and ſmall fingered, fleſhy ſweetiſh roots, which latter are the eatable parts, for uſe in autumn, winter, and ſpring, to boil; raiſed from ſeed ſowed in the ſpring in one or two ſmall crops, to remain, and thinned ſix inches diſtance, alſo by ſlips of the roots of old plants, and attain perfection the ſame year in autumn, and continue good till next March or April, then ſhoot for ſeed, become hard, dry, and unfit for eating; though will continue by the root, and increaſe by young off-ſets, not however ſo good for uſe as ſeedling plants.

There is but one ſpecies, viz.

(Siſarum) or ſkirret.

This plant is not in much requeſt at preſent, its root is ſweetiſh and tender, and ſerves more for variety at table than to cultivate in any conſiderable crop for profit.

It is raiſed principally by ſeed in March or April, in a compartment of light ground, a ſmall crop ſowed, either broad-caſt, and raked in, or in drills ſix or eight inches aſunder; and when the plants are two or three inches high, in May or June, hoe and thin them ſix or eight inches diſtance, eradicate the weeds, and keep them clear therefrom all ſummer.

About September and October the roots will be arrived to full growth, to draw for uſe, and will continue good till the ſpring.

It

It may alſo be propagated by ſlips of the ſide off-ſets of the year-old roots, which may be detached in the ſpring, and planted ſix to eight or ten inches diſtance, they will grow freely and encreaſe to a proper growth for uſe the following autumn; but the ſeedling plants are generally preferable.

To ſave ſkirret ſeed, leave ſome year old plants in the ſpring to run to ſtalk, they will furniſh ripe ſeed in autumn.

PEAS.

In the Botanic Syſtem, Piſum ſativum, *or cultivated Pea.*

PEAS are principally annual plants, very ſerviceable and profitable crops both for garden and field culture, for their green pods in ſummer, from May till September; but the principal ſeaſon of greateſt plenty and perfection is June, July, and Auguſt, and in winter, in their dried ſtate, for ſplit and whole peas; conſiſt of many varieties, all raiſed from ſeed annually in ſeveral crops, ſowed every month from November, December, or January, till May, for early and main crops, and June, July, Auguſt, for late peas, all ſowed in drills, from two to four feet aſunder, and to remain where ſowed; thoſe ſowed before Chriſtmas come in for early crops the following May and June, ſucceeded by the others of the winter and ſpring ſowings in June, July, &c. to the end of ſummer or autumn; and all the plants, after their production of green and ripe peas, wholly decay the ſame year.

The varieties of peas are,

Early dwarf peas.
Early golden hotſpur peas.
Early Charlton hotſpur.
Early Nichols hotſpur.
Long or Reading hotſpur (long pods).
Maſters hotſpur.
Ormrod's hotſpur.
Dwarf marrowfat peas (large pods and moſt ſweet peas).

Large

Large marrowfat peas (largeſt growing, and large pods).
Green rouncival peas (large).
Grey rouncival peas (large).
White rouncival peas (large).
Blue rouncival peas (large).
Green nonpareil peas.
Spaniſh morotto peas (large)
Large crooked ſugar peas (very large crooked pods; peas remarkably ſweet; and the young pods to dreſs like kidney beans).
Dwarf crooked ſugar peas.
Large egg peas.
Pearl peas.
Blue union peas.
Roſe or crown peas (of ſtrong growth, bearing the flowers and pods in a crown or tuft at top).
Leadmans dwarf (ſmall pods, but a great bearer, and ſweet peas).
Common grey peas (for field culture).

Theſe being the principal varieties of peas, the moſt deſirable of which for general culture or main crops, are the hotſpurs for the early and firſt general crop, and the marrowfats for ſecondary main crops to ſucceed the hotſpurs; but any of the others may alſo be ſowed in ſmaller portions to obtain a larger variety, particularly the rouncivals (fine large peas), ſugar peas, and Spaniſh morotto, and occaſionally crown peas; and the Leadmans dwarf for late crops; however, for the main ſupplies, either the Charlton, golden, or Nichols hotſpurs, are proper both for early and firſt principal crops, as being nearly ſimilar; the two latter are earlieſt; the Reading, Maſters, and Ormrods, are very good for general or ſecondary main crops of hotſpurs, as plentiful bearers and fine long pods; and the marrowfats are very deſirable for full crops, but moſt of the dwarf marrowfats for the main ſupplies, eſpecially where not to be ſticked.

All the ſorts of peas being climbing plants, aſcending by their tendrils or claſpers upon any adjacent ſupport

port of branchy ſticks, &c. it is of great advantage in their culture to allow them ſupport of ſticks accordingly to climb upon, by which their production will generally be ſuperior and more abundant than thoſe which trail on the ground; though this however may be very practicable in moderate crops, but for large quantities it would be attended with too great labour and expence.

Peas being all raiſed from ſeed, ſowed in different crops, from October, November, or December, every month till May, June, July, &c. for early, main, and late ſupplies, obſerve the following directions of culture for each.

Early Crops.

For early peas. That to have a few as early as poſſible, ſome early hotſpurs may be ſowed the latter end of October in a warm border, though November or December may prove more ſucceſsful for a certain crop; or, for the greater chance, a moderate portion may be ſowed in each of theſe months, and in January, that if one crop fails, or is killed by the winter froſt, another may ſucceed; and if they all ſurvive the winter, they will produce in regular ſucceſſion: performing the ſowings in a ſouth border, or warm-lying quarter of ground, in drills two feet and half, or a yard aſunder; or, of the earlieſt ſowings, have a drill lengthways cloſe to a ſouth wall.

When the peas are up one, two, or three inches, or more, hoe between them occaſionally, drawing a little earth up to the ſtems; and when five or ſix inches high, thoſe deſigned for ſticks, ſhould have a row placed to each line of peas, drawing more earth to the oppoſite ſide to incline them to the ſticks.

When the plants are advanced in full growth and in bloſſom, the earlieſt crops in warm borders may be topped a little to forward their podding; that is, to pinch off the extreme end of the tops of each plant, to prevent their ſhooting further in length, that the nouriſhment may go principally to the bloſſom, which will encourage the pods ſetting more freely, ſooner, and fill

more effectually: likewiſe in the time of bloſſoming and podding, if the weather proves very dry, watering in a morning or evening will prove very beneficial in promoting a plentiful production.

Theſe early crops, if they ſucceed, will produce in May and June.

But if after a ſevere winter you obſerve theſe early crops are greatly injured, or wholly killed, by the rigours of the froſt, loſe no time but ſow again as ſoon as poſſible in January or February, &c. in open weather, in a larger ſupply than before.

Or as ſometimes the earlieſt ſowed peas are entirely cut off in ſevere winters, that to ſupply their place as ſoon as poſſible with a few for an earlieſt crop, ſome of the early kinds may be ſowed thick in large pots, or in boxes, in January or February, and placed either in a hot-bed or hot-houſe to raiſe the plants expeditiouſly an inch or two high, when inure them by degrees to the full air by removing them out in fine days, then tranſplant them in a row cloſe along under a ſouth wall; they will come in earlier than any raiſed at the ſame time wholly in the open ground.

But early peas may be raiſed to forwarder production entirely in hot-beds, where required to have a few as early as poſſible in March or April.

For this purpoſe ſow ſome early dwarf frame peas in November or December in a warm border, or under a frame, or in a hot-bed, in rows ſix inches aſunder, to raiſe the plants an inch or two high; then in December or January making a hot-bed for one or more three-light frames and glaſſes, and earthed ſix or eight inches thick, remove the pea-plants with full roots and earth adhering, and plant them in the hot-bed in croſs rows, fifteen or eighteen inches diſtance, giving air in mild days, occaſional moderate waterings, and ſupport a good middling heat in the bed by giving neceſſary linings of hot dung to the ſides. The peas are not to be ſticked. Or, where convenient to have bark hot-beds, and the pea plants tranſplanted therein, as above, they will generally prove more ſucceſsful than in dung hot-beds.

Likewiſe,

Likewiſe, where there are hot-houſes, and fruit-forcing houſes, early peas may be ſowed therein, or plants raiſed as above, and tranſplanted into pots or boxes, and placed in theſe glaſſiaries in December, January, &c. they will produce a few very early.

Sowing Main Crops, ſucceſſional and late Supplies, to produce in June, July, Auguſt, September, &c.

For a principal crop of peas, may begin ſowing larger portions in December, about the beginning and middle of the month, or towards Chriſtmas, if mild open weather, in ſome large ſouth border, or other warm dry compartment, principally of the early golden, or Charlton kinds, &c. in drills three feet, or three and half aſunder, if for ſticks, otherwiſe two feet and a half will be ſufficient. Sow more in full crops of the ſame ſort in January, larger quantities in February and March; all, in any of the warmeſt main quarters of ground, in the order as above: or, likewiſe, in January, February, and March, may ſow any of the other hotſpur kinds; and continue ſowing, of any ſorts required, every fortnight or three weeks till April or May, to have a regular ſucceſſion in production from June, July, till Auguſt, being the principal ſeaſon for the main crops of peas, producing them in the greateſt perfection and abundance.

Likewiſe in January, in open weather, ſow a moderate crop of marrowfats, full crops in February and March, and ſucceſſional ſupplies in April and May; likewiſe, for lateſt crops, ſmaller portions may be ſowed in June and beginning or middle of July, for a chance of a late autumn production. Alſo, from February to May, or end of June, any of the other large peas may be ſowed, as morottos, rouncivals, ſugar peas, crown peas, &c. but moſt of the marrowfats; all which large ſorts, the marrowfats and others, ſow in open compartments, in drills three feet, or three and a half aſunder; or, if they are intended for ſticking, four feet will be more eligible for moſt of theſe larger growing peas, both to admit of ſufficient room, in the full growth of the plants, for them to advance freely,

without thoſe of the different rows interfering or intangling in one another, and to give free admiſſion to the ſun, air, rain, &c. as well as to have full room to paſs between the rows to gather the produce without breaking or detrimenting the plants: or theſe ſorts may be ſowed occaſionally in double rows for ſticking; that is, to have rows two and two together a foot aſunder; and to allow a wide ſpace of four feet, or four and a half, between the double rows; but if no ſticks are intended, or not convenient to obtain ſticks, the row may only be three feet aſunder, which will be room enough; theſe ſorts, in the firſt ſowed crops, will come into bearing in June, and be ſucceeded by the others in July and Auguſt.

And for late crops in autumn, ſow ſmaller portions of any ſorts of peas in May, June, July, to produce in July, Auguſt, and September: but in the lateſt ſowings, in June and July, it is proper to ſow principally the ſmaller peas again, as ſome beſt hotſpurs, and ſome Leadman's dwarf peas, but moſt of the former; alſo ſome marrowfats and rouncivals: and of the ſmaller peas, may alſo try a late ſowing the beginning of Auguſt, particularly of the dwarf, and ſome golden and Charlton kinds. They will ſometimes afford a moderate ſupply about Michaelmas and beginning of October.

In ſowing peas in the ſummer months, when dry hot weather, in June, July, Auguſt, it will be of much advantage previouſly to ſoak the peas in ſoft water a few hours; or alſo, where convenient, to water the drills; then directly ſow the peas, and earth them over immediately after to preſerve the moiſture; they will thus quickly germinate or ſprout, and come up ſoon and regularly together.

According as the different crops of peas come up, one, two, or three inches high, or more, and weeds begin to advance conſiderably, hoe the ground between the rows, and, at the ſame time, hoe up ſome earth to the plants in their young ſtate, when from three or four to ſix or eight inches growth, drawing the earth to both ſides of each row moderately.

Where

Where ſticking the different crops of peas is intended, or any particular crops, it ſhould be performed according as the plants of the different crops advance to ſix or eight inches growth, and putting forth their tendrils or claſpers for climbing; having for this purpoſe a proper quantity of good branchy ſticks, trimmed up in a fanned ſpreading order, from about five or ſix to ſeven feet high, or more, to ſuit the ſmaller and larger growing peas, in their different heights of aſcending growth, place a range of ſticks to each row of peas, generally ſetting them on the ſunnieſt ſide, in order that the ſun may incline the plants more readily towards the ſticks: obſerving alſo to ſet the ſticks near enough together for the ſide-branches to meet, to which the peas will readily attach themſelves by their cirrhi or tendrils, and thereby aſcend to the top; and by which aſſiſtance in their climbing growth, they will produce more abundant and finer crops in general than thoſe without ſuch ſupport, and will continue longer in production.

The above work of ſticking peas may be conveniently effected in moderate crops; but in conſiderable crops, in extenſive market-grounds, conſiſting ſometimes of one, two, or ſeveral acres of peas in one crop, the ſticking would in a manner be impracticable, greatly too expenſive, and almoſt endleſs labour.

In the productions of the ſeveral crops of peas when fit to gather, it ſhould always be performed while the pods are moderately young, well filled, plump and green, and while the peas therein remain green, tender and ſweet, as they will then be much finer for eating than of an older growth; and that being thus gathered in a moderately young ſtate, the plants will alſo yield more plentifully, by continuing to bloſſom and pod in longer ſucceſſion: generally in each gathering pluck them tolerably clean, all that are of a proper growth, as above, which will alſo contribute to their longer production; for when permitted to remain in any conſiderable quantity to become old, the produce is inferior in goodneſs, and the plants do not continue bloſſoming

and podding in that ſucceſſive order, as when cloſe gathered in a moderately young ſtate.

To ſave peas for ſeed, either ſow a quantity of the different ſorts required in the ſpring, about January, February, or March, to remain wholly for that purpoſe, eſpecially for large ſupplies; or, for ſmaller quantities, may leave ſome rows of the ſpring-ſowed crops ungathered, which will be greatly preferable in the goodneſs of the ſeed, in having it pure, in its reſpective varieties, to the gleanings or laſt production of the ſeveral crops that remain ungathered for uſe, as often practiſed; permitting them to continue in growth till the pods and peas therein are full grown, and the pods changed brown, become dry, and the peas alſo dry and hard, in July or Auguſt, then cut or pull up the haulm, and pods thereon, placed in the ſun to harden the ſeed; and then, at a proper opportunity, threſh out the peas, ſift and clean them from the huſks and other refuſe, then put up in bags, &c. and houſed for next year's ſowing.

ROSEMARY.

By the Botaniſts, Roſmarinus (Roſmarinus officinalis), *or officinal Roſemary.*

ROSEMARY is a ſhrubby aromatic plant of the evergreen tribe, perennial in root and branches: the young tops of the ſhoots and leaves together are the parts for uſe, principally for medicinal occaſions in a family, and for which a few plants ſhould be retained in the kitchen garden; is obtained green at all times of the year when wanted, and raiſed generally by cuttings and ſlips of the young ſide-ſhoots of the branches, in ſpring and early part of ſummer; alſo by layers of the lower young branches and ſhoots; all which root freely the ſame year, and ſhoot at top, forming good plants by autumn, and will continue encreaſing in growth, of many years duration, remaining always green.

One ſpecies, furniſhing ſeveral varieties, viz.

Narrow-leaved roſemary.

Broad-

Broad-leaved roſemary.
Gold ſtriped-leaved roſemary.
Silver ſtriped-leaved roſemary.

Of theſe varieties the firſt two are hardy plants, the former of which is that commonly cultivated, though the broad-leaved ſort is nearly of equal quality for uſe; but the two variegated kinds are retained principally for variety, or may alſo be occaſionally uſed, as the other two, for medical purpoſes; obſerving however, as they are ſomewhat tender, they ſhould both be planted againſt a warm wall, to afford them ſhelter in winter.

However, as to the common green ſorts, they are very hardy plants, will grow in any common garden-earth, and do not require any particular ſituation; and of which a few plants are ſufficient for domeſtic ſupply for medical purpoſes, when occaſionally wanted.

For private uſe a few plants may either be procured at the nurſeries for preſent ſupply, or may be eaſily raiſed as below.

They are raiſed principally by cuttings, or ſlips of the young ſide-ſhoots of the branches, in March, April, May, chuſing young ſhoots of about ſix to eight or ten inches long, cut or ſlipped off cloſe to the branches; detach the under leaves, and plant them by dibble in a ſhady border, ſix to ten or twelve inches diſtance, inſerted half or two thirds into the ground; giving moderate waterings in dry weather; they will root below and ſhoot at top and form branchy heads by September or October; when, or following ſpring, tranſplant as many as may be wanted into the herbary, two or three feet aſunder to remain; they will continue many years, and encreaſe conſiderably in growth.

They may alſo be propagated by layers of the lower young branches in the ſpring, laying the body of the ſhoots into the earth three or four inches deep with the tops out; they will be rooted by autumn following: then ſhould be ſeparated from the parent plant, and planted where they are to remain.

To gather roſemary for uſe, generally cut the young ſhoots and leaves together; or when in flower, a quan-

tity of the ſhoots, with the flowers thereon, may be gathered, as being then in greateſt perfection.

As to culture of roſemary, the plants only require to have caſual decayed and ſtraggling branches pruned.

RUE.

In the Botanic Syſtem, Ruta (Ruta graveolens), *rank-ſcented Ruta, or common Rue.*

RUE is a ſhrubby ever-green plant, of two or three feet growth, furniſhed with ſmall winged leaves all the year, of a ſtrong rank ſmell and taſte, and which are the parts for uſe; principally for medical purpoſes, and being often neceſſary in domeſtic occaſions, is proper to have in a kitchen garden: obtained green for uſe at all ſeaſons of the year; and the plants are raiſed both by ſeed ſowed in the ſpring for tranſplanting, and by ſlips and cuttings of the young ſhoots of the branches in ſpring and ſummer, which root freely, and grow to handſome little plants by autumn for final tranſplantation where they are to remain; and they will continue of many years duration, encreaſing in growth, and always furniſhed with leaves.

The varieties of rue are,

Broad-leaved, or common rue.

Narrow-leaved rue.

The two varieties are equally eligible for uſe: the broad-leaved ſort is the moſt generally cultivated: are very neceſſary plants for a family garden, for occaſional uſe in a medical way; and for which a few plants will be ſufficient; which may either be procured for preſent uſe at the nurſeries, raiſed to a proper growth of one or two feet high, and planted in the herbary; or may be eaſily raiſed as directed below.

Both the varieties of rue may be raiſed from ſeed, but more expeditiouſly by ſlips and cuttings of the branches.

To raiſe them from ſeed, ſow it in the ſpring or autumn in a bed of common earth in ſmall drills, or on the

the ſurface, and raked in; and when the plants are three or four to five or ſix inches high, tranſplant them into a bed or border ſix inches to a foot diſtance, to advance in growth for a year; then, in ſpring or autumn, ſome may be tranſplanted two feet diſtance, where they are to remain. Sometimes, from ſcattered or ſelf-ſowed ſeeds, many young plants come up naturally.

By ſlips or cuttings, rue propagates freely, which generally perform in March, April, or May; when cut or ſlip off a quantity of the young ſide or top ſhoots of the branches, ſix or eight inches long, and plant them in a ſhady border, and occaſionally watered; they will emit roots in the earth, and ſhoot at top in a buſhy growth by autumn, to tranſplant as required.

A few of theſe plants being ſufficient for domeſtic occaſions, they will continue many years: they require but little culture, only to cut away decayed ſhoots, &c. dead flower ſtalks, and ſtraggling branches, to keep them to regular buſhy heads.

If the ſeed of rue is required, permit ſome of the flower-ſpikes in ſummer to remain till autumn; they will furniſh plenty; and from the ſcattered ſeeds many young plants often riſe naturally.

RADISH.

In the Botanic Syſtem, Raphanus ſativus, *or cultivated Radiſh.*

RADISHES, conſiſting of the common ſpindle-rooted and turnep-rooted ſorts, are annual plants, eſteemed principally for their roots to eat raw in ſallads, and alone, in ſpring, ſummer, and autumn; and alſo as a ſmall ſallad-herb in the young ſeed-leaves; but of greateſt value to cultivate for the roots; conſiſting of ſeveral varieties; all raiſed from ſeed ſowed in different crops, or once or twice every month, from January, February, or March, till May, for the main ſupplies in ſpring and ſummer; or ſmaller portions ſowed alſo in June, July, &c. for late ſucceſſion; or alſo in Au-

guſt and September, for autumn: the plants all to remain where ſowed, and thinned moderately, grow to perfection in eight or ten weeks, the early crops; or in half that time in the more advanced ſeaſons; and they, ſoon after full growth, ſhoot for ſeed, and wholly die the ſame year, excepting one particular ſort (black Spaniſh radiſh), which raiſed in autumn, being very hardy, ſtands the winter till ſpring; then it alſo runs to ſtalks for ſeed, ripening it in autumn, and then dies top and root.

The varieties of radiſhes, conſiſting of the common ſpindle-rooted and turnep-rooted ſorts, are as follow:

1. *Common Spindle-rooted Sorts.*
   - Early ſhort-top radiſh.
   - Common ſhort-topped radiſh.
   - Salmon radiſh (the root ſalmon-coloured).
   - Early ſhort-topped ſalmon radiſh.
2. *Turnep-rooted Kinds.*
   - White Italian turnep-radiſh (ſmall round orbicular root).
   - Red Italian turnep-radiſh (ſmall rooted).
   - Black Spaniſh turnep-radiſh (large rooted).
   - White Spaniſh turnep-radiſh (large rooted).

Of theſe varieties the common ſpindle, or long-rooted kinds, are the principal ſorts for the main ſpring crops, or general ſupplies; and ſome of the turnep kinds are delicate eating, particularly the white and the red Italian ſorts, having a ſmall round orbicular root, ſimilar to a Dutch turnep; good both for ſpring, ſummer, and autumn eating; by many preferred to the long-rooted kinds: and the black and the white Spaniſh turnep radiſhes, having large roots, are of a ſtronger hot reliſh, are eſteemed chiefly for autumn and winter, more particularly the black, which is very hardy to endure the froſt, and continue for eating till the ſpring.

Radiſhes are alſo cultivated as ſmall ſallad herbs to uſe in their young ſeed-leaves, when only a few days or a week or two old at moſt, and for which purpoſe the ſeed of any ſort of the common radiſh is proper, and are generally ſowed in aſſemblage with creſſes, muſtard, &c. each ſort ſeparate, in ſpring, ſummer, or any

any ſeaſon of the year, once a week or fortnight, or as required, as one ſowing does not continue longer in good perfection, as they ſhould always be uſed while quite young in the ſeed leaves, otherwiſe would be too hot, rank, and diſagreeable to eat.

Likewiſe of radiſhes their green ſeed-pods, produced from ſuch plants as are permitted to run for ſeed in ſummer, are eſteemed for pickling: in perfection for that purpoſe in Auguſt and beginning of September.

Alſo, radiſhes in the full-grown roots are good to boil occaſionally.

Crops of radiſhes for their roots may be obtained early and late, from February or March till May or June; or alſo ſummer and autumn if required, from July, Auguſt, or September, till October, November, or December; though the principal ſeaſon of general perfection and eſtimation is ſpring and beginning of ſummer, from March or April till June, as in the ſummer months they ſoon grow hard, and hot to eat, but are often very fine in autumn, in September, October, &c. and for which different crops the ſeaſon for ſowing radiſhes is principally January, February, and March, till May, for the early and main ſpring crops; and June, July, Auguſt, and September, in ſmaller ſucceſſional ſupplies for autumn, &c. and in all of which the plants to remain where ſowed, and occaſionally thinned.

Firſt, of the Common Radiſhes.

To have early radiſhes, you may ſow both in warm ſouth borders and in hot-beds, in December, January, or beginning of February.

For early border radiſhes, ſome of the beſt ſhort-tops may be ſowed the middle or latter end of December, if dry open mild weather, or any time in January; or ſow a few in each month, for the greater chance of ſucceſs in caſe of unfavourable weather; and for which allot a warm border, or other compartment, of light rich dry ground: ſow the ſeed moderately thick at this ſeaſon, and rake it well into the earth; or the ground may be formed into five or ſix feet wide beds; and after

the ſeed is raked in, pare the alleys two inches deep, and caſt the earth over the beds to cover the ſeed more effectually; and at this time, as ſoon as ſowed, cover the ground with clean dry ſtraw, two inches thick, or with garden mats, both to defend them from birds and to keep the ſurface warm, and promote the ſeed germinating more expeditiouſly.

When the radiſhes come up, rake off the ſtraw covering every mild day, and fork it over again in the evening; and, if froſty weather, continue the covering day and night; which care will be neceſſary till March, or until there is no danger to be apprehended from the froſt; obſerving alſo, where the radiſhes ſtand very thick, to thin them a little by hand.

Sow more the middle or end of January in a ſimilar ſituation as above, and a larger portion the beginning or middle of February; each covered with ſtraw or mats, as before directed, where convenient; and managed in ſame manner.

Theſe ſowings will come in for drawing in March and April, at which times, if dry warm weather, give moderate waterings.

Early Radiſhes, by Hot-beds.

When required to have radiſhes as early as poſſible, ſome early ſhort-tops may be ſowed in a hot-bed in December, January, or February.

For this purpoſe make a hot-bed of new horſe-dung for one or more three light frames, and earthed ſix or eight inches thick with light rich mold; ſow the ſeed on the ſurface, and cover it with earth half an inch deep, and put on the glaſſes; or, in want of frames and lights, arch over the bed with hoops or rods, and cover with mats of nights, and in froſty, and all bad weather.

When the plants come up, admit the free air by propping up the lights, or taking them off in fine mild days; or if under mats, let thoſe be thrown up in front daily, or taken quite off when very mild weather; but in ſevere froſty weather keep all cloſe, and cover the glaſſes or mats every night with additional covering of mats or dry long litter; and keep up a moderate heat in the bed

by

by application of a gentle lining of hot dung to the ſides when the heat declines, ſtill being careful to give air at all favourable opportunities daily, otherwiſe they will draw up weak and long-ſhanked; and if the plants ſtand very thick, thin them moderately; likewiſe give occaſional waterings when the earth appears dry.

By the above culture, radiſhes may be obtained ſometimes in January; but more ſucceſsfully in February and beginning of March.

Or, in want of hot-beds, ſow in January in a bed of natural earth, and defend it either with a frame and lights, or arched over with hoops, and cover of nights and bad weather with mats; obſerving as above.

Likewiſe in hot-beds may ſow ſome white Italian turnep radiſh in January or February for an early crop; they will ſucceed very well.

Main Crops for Spring, Summer, and Autumn.

For main crops of radiſhes, begin ſowing about the beginning, middle, or any time in February, in large borders, or warmeſt main quarters of ground; continuing ſowing ſome every fortnight or three weeks, till May, both of the ſhort top kinds for the general ſupplies, and of the ſalmon radiſh for ſucceſſion and variety, or in full crops, as may be required; for this ſort is not inferior, but by many eſteemed preferable, to the ſhort tops for a late general crop, to ſow in March, April, and May; or where a continued ſucceſſion is required, the ſowings may be performed every fortnight all May and June, for ſummer eating; or for longer ſucceſſion may continue ſowing in July, Auguſt, till the beginning or middle of September; for autumn radiſhes, for drawing in Auguſt, September, till October or November.

However, for general ſpring and ſummer crops, February and March, till May, is the proper time for ſowing both in any largeſt borders and in the open quarters.

In the above different ſowings of the ſhort top and ſalmon radiſhes, ſow each ſort ſeparate, broad-caſt on the general rough ſurface, moderately thick and regular,

lar, and rake the ſeed in evenly; and when the plants come up, if they ſtand thick, let them be timeouſly thinned two or three inches diſtance, either by hand thinning, or cut out with a ſmall inch hoe.

Or in ſowing large ſupplies of radiſhes in ſpring, if required to make the moſt advantage of the kitchen ground, ſome may be ſowed occaſionally in the large open quarters, where it is intended to plant the general crops of cauliflowers and cabbage in wide rows; and likewiſe for which ſowings may alſo mix an equal portion of round ſpinach with the radiſh ſeeds, ſowing them together broad-caſt; and if light dry ground, tread them down regular, and then rake them in evenly; and the ground may be planted with the cauliflowers or cabbage, as above, either immediately or in a week, fortnight, or month after, ſetting them two feet and a half, or a yard diſtance; the radiſhes and ſpinach will come in for uſe in April, May, and beginning of June, and will be all gathered off time enough for the cauliflowers, &c. to advance without impeding the growth of one another: the radiſhes come off firſt, then the ſpinach; after which hoe the ground well between the remaining crops of cabbage or cauliflowers, cutting up all weeds and remaining uſeleſs plants of the radiſhes and ſpinach, and hoe earth about the ſtems of the cauliflower and cabbage plants; however this intercropping or ſowing with and between other crops is only mentioned where neceſſary to make all poſſible advantage of the ground, and is the method practiſed by the London market gardeners; obſerving in either caſe where the radiſhes are come up very thick, to thin them moderately by ſmall hoe or hand thinning, two or three inches diſtance; and if ſpinach is ſowed on the ſame ground, this when advanced with leaves two or three inches broad, thin them out by degrees for uſe; and when the radiſhes and ſpinach are all gathered, broad hoe the ground between the cauliflowers, &c. as above intimated.

Salmon radiſhes are very proper to ſow for main crops in March, April, and May, for drawing in April, May, and June; and are very deſirable radiſhes

diſhes for latter crops, ſuperior to the ſhort top or common red radiſh for ſummer and autumn eating; and if required in autumn, they may be ſowed in Auguſt and beginning or middle of September, and will come in for uſe from Auguſt or September till October and November.

Likewiſe the white turnep radiſh, and the red kind, may be ſucceſsfully ſowed in moderate crops in any of the ſpring months from February till May, &c. and in autumn; and when they are come up with leaves an inch broad, then thin them five or ſix inches diſtance.

If required to continue a ſucceſſion of radiſhes throughout the ſummer, ſow any of the ſorts every fortnight all May, June, and July; thoſe at this ſeaſon of ſowing will be ready to draw in three or four weeks.

And for autumn radiſhes, ſow in Auguſt and September, which will continue a ſucceſſion from September to November and December.

Turnep Radiſhes.

Turnep radiſhes may be ſowed in the different ſeaſons mentioned for the common ſorts, but particularly the white Italian kind and red ſort, which may be ſowed in a warm border in February, and in March, April, and May, in any open ſituations; or for early drawing, ſow ſome in a hot-bed in January, February, or March; and for autumn uſe, ſow in July, Auguſt, and September; and when the plants have leaves an inch broad, hoe or hand thin them to five or ſix inches diſtance, though ſmall crops in hot-beds, &c. may be thinned only three or four inches aſunder.

But the black Spaniſh turnep-radiſh being the largeſt and hardieſt of all the radiſh tribe, is eligible principally to ſow for autumn and winter; ſow a few in June and July for autumn ſupply, and in Auguſt for a winter crop: all of which, when advanced with leaves an inch or two broad, hoe and thin them ſix or eight inches aſunder, and the roots will grow as large as ordinary turneps.

Of

Of this ſort, in November or December, take up a quantity, cut off the tops cloſe, and then lay them in ſand ready for uſe when thoſe in the ground are frozen up in winter.

To ſave radiſh ſeed, ſome fineſt plants of the main crop ſhould be tranſplanted; let this be done about the beginning or middle of May, when the roots are in beſt perfection, drawing up a quantity of the different ſorts when of middling growth, out of which ſelect only the fineſt beſt coloured roots, and plant them in an open ſituation two feet diſtance, and directly watered; they will ſhoot up in ſtrong branching ſtems, and furniſh ripe ſeed in September, when cut up the ſtalks and expoſe them to the weather for ſome time, to render the huſk of the ſeed veſſels brittle, that they may readily break in threſhing to diſcharge the ſeed.

SAGE.

By the Botaniſts, Salvia officinalis *(Officinal Sage).*

SAGE is an underſhrubby evergreen perennial, of the aromatic tribe, its leaves being the parts uſed for various culinary uſes, and for ſage-tea by way of medicine; are obtained for uſe at all ſeaſons of the year, both in their growing ſtate and dried for winter; conſiſts of ſeveral varieties, all raiſed principally by ſlips of the young ſhoots in ſpring and ſummer, and occaſionally by parting or ſlipping the roots and top together, planted a foot or fifteen inches aſunder, one ſmall or moderate crop once in ſeveral years, as they continue perennial in root and branches, the leaves evergreen, to gather for uſe ſummer and winter, &c.

The varieties of ſage are,

Common red ſage (for general kitchen uſe).
Green ſage (alſo for culinary occaſions).
Broad leaved balſamic (beſt for ſage tea).
Narrow leaved ſage, or ſage of virtue (uſed alſo for ſage-tea and other medical occaſions).

Of

Of theſe varieties, the red ſage is generally moſt eſteemed for the kitchen, though the green is equally good: the broad leaved balſamic ſage is in eſtimation to uſe by way of medicine, and as the beſt and moſt efficacious for ſage-tea; and the ſmall leaved, or ſage of virtue, is alſo uſed occaſionally for ſage tea and other medicinal purpoſes;—are moſtly low buſhy plants from one to two feet high.

All the ſorts merit culture in the kitchen garden, a ſmall bed of each for family ſupply; but moſt of red and green ſage for culinary uſes; may be planted in any common garden ground, in beds or borders, either raiſed in young plants, by ſlips, cuttings, ſuckers, &c. in ſpring and ſummer; or for immediate ſupply, may procure ready rooted full plants at the nurſeries or markets in ſpring, ſummer, or autumn, with balls of earth about the roots, and planted a foot aſunder.

They are propagated or raiſed principally by planting ſlips of the young ſide ſhoots of the branches in ſpring and ſummer, and occaſionally by bottom off-ſet rooted ſhoots and ſuckers.

The ſpring propagation may be performed in March and April by young ſide ſhoots of the former year, chuſing the outſide robuſt ſhoots five or ſix inches long, cut or ſlipped off cloſe; take off the under leaves, and plant them in a bed or border ſix inches aſunder, inſerted two-thirds in the ground, and watered at planting, and afterwards occaſionally; they will root in five or ſix weeks, and ſhoot branchy above.

But the ſummer propagation and planting, by the young ſhoots of the year in May or June, is generally the moſt ſucceſsful; taking opportunity of ſhowery weather, when the year's ſhoots are five or ſix inches long, ſlipping them off cloſe to the mother branches, detach the lower leaves, and plant them in a ſhady border, within an inch of the top, and watered; they will ſoon emit roots below and ſhoots above; obſerving, if they ſpindle up ſlender, top them ſoon within two or three inches of the bottom, they will ſhoot out below and form robuſt buſhy plants for uſe the ſame ſummer and autumn, &c. then about September or October, or following

following ſpring, ſome, or the whole, may be tranſplanted, with ſmall balls of earth to the roots, into other beds or borders, a foot to fifteen or eighteen inches diſtance, finally to remain.

Or ſometimes low buſhy ſage branching out from or near the ground in ſeveral off-ſet or ſucker ſhoots, furniſhed with root fibres, or of a rooty nature, they may be ſlipped off to the bottom, and planted, they will ſoon make good plants.

But in immediate want of ſage, ſome ready-rooted full plants of a ſmall buſhy growth may be procured in ſpring, ſummer, or autumn, with balls of earth, and planted, they will furniſh leaves for preſent ſupply.

In gathering ſage, ſlip or cut the young ſhoots and leaves together; and to dry for winter, gather a quantity in July or Auguſt, dried in a ſhady place, and then tied in bunches and houſed.

With regard to culture, keep them clean from weeds in ſummer, and in autumn cut away the decayed flower ſtalks, then dig lightly between the plants, alſo give a ſlight digging in March or April, or occaſionally at thoſe ſeaſons, after looſening the earth of the beds, dig the alleys between them, and ſpread a portion over the beds between the plants, the freſh applied ſoil will improve their growth.

Make new plantations once in three or four years, or when the old plants grow naked or ſtubby, or the leaves ſmall and thinly placed on the ſhoots.

SAVOY, OR SAVOY-CABBAGE.

A Species of the BRASSICA *or Cabbage Family (Braſſica* Sabauda), *or Savoy-Cabbage, commonly called Savoy.*

THE SAVOYS are varieties of the heading cabbage tribe, hardy biennial plants, moſt valuable crops for their fine cabbaged heads, of curly or crumpled leaves, excellent cabbage greens for uſe in the end of autumn, and all winter, till they begin to run in February or March; but in greateſt perfection in fine large

large close heads from September or October to November, December, or January; more hardy to stand the winter, and peculiarly adapted for use in that season, in preference to the common cabbage tribe; are raised from seed annually sowed in spring and early part of summer, in two or three full crops, all for transplanting in June, July, August, &c. two feet and a half distance, attain full growth the same year in autumn, continuing good till next spring, then shoot for seed, ripening it in autumn, and then wholly die.

The varieties of savoys are,

Green curled savoy.
White curled savoy.
Yellow savoy.
Round headed savoy.
Sugar-loaf savoy.

All these varieties cabbage with large close heads, that boil tender and sweet in autumn and winter; and should be raised in plentiful crops every year.

But of which, the green savoy is preferable to cultivate in the greatest plenty for the main crops, both as being hardiest to stand the winter, growing with fine full heads, that boil more tender and good to eat; though it is proper to raise also smaller supplies of the other sorts, such as the white and yellow; as to the round and sugar-loaf kinds, they occur casually in all the varieties.

All the sorts will thrive in any common good ground in gardens and fields, best in open exposures, both in their young seedling growth, and when planted out finally; the more distant from walls, hedges, or corners, the better, in which they are both apt to run up weak, and often liable to be much attacked with caterpillars in summer and autumn.

They are all raised from seed sowed at two or three different times in the spring from February or March till May, to have a good succession.

The rule is, sow a moderate portion in February and March, a larger supply early in April for the main winter crop, and a smaller crop in May for late savoys, or to stand till after Christmas, or towards the spring; each

each ſowing perform in beds of good mellow earth in an open free ſituation, ſowing broad-caſt moderately thick on the ſurface, and raked in regularly; and when the plants are come up with leaves an inch broad, if they are thick, thin out a quantity of the beſt, and prick in other beds, ſix by three or four inches aſunder, and watered, and in which to remain four or five weeks, to acquire a ſtronger robuſt growth for final tranſplanting in May, June, July, &c. and the ſeed-bed being hereby thinned, the remaining plants will alſo have more room to obtain a proper growth for the ſame occaſion.

Then in May, June, July, and Auguſt, when the plants of the different ſowings, both in the ſeed-beds and pricked-out beds, have ſeveral leaves two or three inches broad or more, take opportunity of the firſt ſhowery weather and plant good crops in open ground, two feet and a half or a yard aſunder, the firſt main crops in May, June, July, afterwards two and a half to two feet will be ſufficient; and if they have a watering at planting it will prove beneficial in ſettling the earth to the roots, and in promoting their more expeditiouſly taking freſh root, and proceeding in a free growth.

Keep the whole clean from weeds, by occaſional hoeing in dry weather when weeds appear, and in their advancing growth hoe earth about the bottom of the ſtems once or twice, to encourage their growing freely to a large ſize and full heads.

When the heads are well cabbaged, not before, about September and October, they may be cut for uſe as wanted from that time throughout the winter till ſpring; when about February or beginning of March will be paſt perfection, as the heads will open and ſhoot for ſeed.

Savoys, to gain time and ground, may be planted between advanced other crops that ſtand in wide rows, as broad beans, kidney beans, early cabbage, cauliflowers, &c. that will ſoon come off, and during which the ſavoys will be advancing in two or three weeks growth or more.

The

The ſtalks of the forwardeſt heading ſavoys, after the heads are gathered, being permitted to remain, or taken up and trenched down together almoſt to the tops, will afford ſecondary crops of fine ſprouts.

To ſave ſavoy ſeed, ſelect in October, November, or December, in open weather, but not later than January or beginning of February, ſome of the largeſt beſt headed and moſt curly leaved plants of the main crops, dig them up with full roots, detach the large outer leaves; then, in ſome free ſituation, plant each ſort ſeparate, performing it by digging or trenching the ground, and inſert them in the trenches as you proceed, trenching them down quite to the heads, in rows two feet aſunder; they will ſhoot in the ſpring, and produce plenty of good ſeed in July or Auguſt, at which time carefully chace away the birds, as theſe would devour this ſeed and that of all the cabbage tribe at a great rate; cut or pull up the ripe ſeed ſtalks and ſeed thereon, place them in the ſun a week or more, to harden the ſeed and dry the huſks, that they may readily open or break to diſcharge the ſeed; then threſh or beat it out upon cloths, cleaned, ſpread to harden effectually by the ſun a day or two, and then bagged up for next year's ſowing; it being always beſt when not more than a year old.

SAVORY.

In the Botanic Syſtem, Satureja.

SAVORY, conſiſting of two ſpecies, are low buſhy plants, one an herbaceous annual, the other an underſhrubby perennial, both ſweet aromatic herbs of ſmall growth, with ſmall narrow leaves, which, and the young tops of the ſhoots together, are the parts uſed for giving a ſweet ſavour or reliſh to broths, ſoups, and other culinary diſhes, obtained at all ſeaſons of the year; the annual ſort only in ſummer in its green ſtate, and dried for winter; and the perennial or common winter ſavory continues green ſummer and winter; are raiſed

raiſed from ſeed both to remain and tranſplant, and the perennial ſort alſo by ſlips of the top, and parting the roots; one ſmall crop of each, but moſt of the perennial kind, which will abide ſeveral years in root and branches.

The ſpecies of ſavory are,

Summer, or annual ſavory.

Winter, or perennial ſavory.

Both theſe ſpecies are equally good for uſe, as ſweet or aromatic herbs; but the winter ſavory is rather moſt eligible to cultivate for the general ſupply, as being an abiding plant in root and top, continuing always green for uſe at all ſeaſons, and eaſily propagated by ſlips of the young branches; though the other may alſo be eaſily raiſed, both to uſe green in ſummer and to dry for winter.

They are raiſed from ſeed in the ſpring, particularly the annual ſort, the other alſo by ſlips of the top and parting the roots.

The annual ſavory ſow in March or April in a bed of light earth, either in ſmall drills ſix inches diſtance, or broad-caſt and raked in; and the plants, when an inch or two high, about June, &c. thinned three or four inches diſtance, or remain cloſer, to be thinned as wanted for uſe; ſome thinned out may be planted in other beds ſix inches aſunder, and watered; the plants both in the ſeed and tranſplanted beds will be ready for uſe the ſame ſummer and autumn; and ſome when at full growth in flower, may be drawn up and dried for winter.

The winter or perennial ſavory may alſo be raiſed from ſeed in March or April, as the annual ſort, and planted out in ſummer ſix inches to a foot aſunder, or ſome ſowed in an edging to remain.

But this ſort may be abundantly raiſed by ſlips of the young ſide ſhoots of the branches in the ſpring and early part of ſummer; ſlipping or cutting off a quantity, five or ſix inches long, or more, plant them in a ſhady border ſix inches aſunder, and properly watered, they will readily root and grow at top, and form tolerable plants by next autumn, when, about September or following

lowing ſpring, ſome may be tranſplanted a foot diſtance, or ſome planted to form an edging, if required, to any beds or borders in the herbary; this ſort may alſo be propagated by ſlipping the roots and tops together occaſionally into rooted ſets, and planted at once where they are to remain.

In their future culture, keep them clean from weeds all ſummer, and in October or November cut down the decayed flower ſtalks, clean the beds, and hoe or ſlightly dig between the plants, which alſo repeat in the ſpring.

To ſave ſeed of ſavory, permit ſome of the plants to ſhoot to flower-ſtalks in ſummer, remaining till autumn, when the ſeed will ripen.

SORREL.

In the Botanic Syſtem, Rumex Acetoſa & Rumex ſcutatus, *Common and round leaved Sorrel.*

SORREL is a perennial with arrow ſhape and roundiſh ſhield ſhape leaves of an agreeable acid reliſh, and are the uſeful parts of the plants for various culinary purpoſes in moſt ſeaſons of the year; are raiſed both from ſeed in the ſpring for tranſplanting a foot aſunder, or by ſlips of, or parting the roots, planted the ſame diſtance; either of which, one ſmall crop in the herbary, they will furniſh plenty of leaves the ſame year, and the roots continue ſeveral, affording a conſtant ſucceſſion of leaves annually.

The varieties of ſorrel are,

1. Common arrow leaved ſorrel.
   - Narrow leaved.
   - Broad leaved.
   - Curled leaved.
2. Shield ſhape or round leaved Roman or French ſorrel.
   - Creeping round leaved.

Theſe two ſpecies of ſorrel are nearly of ſimilar quality for uſe, though the round leaved ſort is rather preferred

ferred for its leaves being ſomewhat thicker and more ſucculent.

They ſhould be admitted in every kitchen garden in one or two ſmall beds in the herbary; the round leaved ſort have a dry ſoil.

They are raiſed both from ſeed and by ſlipping or dividing the roots; but when the plants are old and the leaves ſmall and thin, raiſe ſome from ſeed, particularly the common ſorrel, to have them larger, thicker, and of a more ſucculent juicy property.

By ſeed.—Sow it in March or April in a bed of common earth, and raked in; when the plants are an inch high, thin them three or four inches aſunder; and when advanced to a larger growth, in ſummer or autumn, tranſplant them into beds a foot or fifteen inches diſtance, they will furniſh leaves for uſe the ſame year.

By parting the roots.—Perform it in ſpring or autumn, either taking off ſome ſide off-ſets with roots, or divide whole plants into ſeparate ſlips, and plant them the above diſtance.

In their future culture, as they will ſhoot to ſtalks in ſummer, cut theſe down to encourage ſupplies of large leaves below; and in autumn, about October or November, cut away any remaining ſtalks, and dig between the plants; alſo in the ſpring.

To ſave ſorrel ſeed, permit a quantity of the ſtalks which ſhoot up in ſpring to remain; they will ripen plenty of ſeed in autumn.

SHALLOT, OR ÆSCHALOT.

A Species of Allium *or Garlick Family and Onion Tribe* (Allium Aſcalonica *or Aſchalot*).

SHALLOT is a ſmall bulbous-rooted perennial, of the onion tribe, with ſmalliſh oblong bulbous roots growing ſeveral together in a cluſter, ſending up ſmall awl ſhape leaves; but the roots only are the principal eatable parts, eſteemed both to eat raw at table as ſauce

to broiled and roaſt mutton, beef, &c. and in ſeveral culinary diſhes, in lieu of, and in preference to onions, for their more mild agreeable flavour; obtained for uſe in ſummer immediately from the ground, and to dry to keep for winter, autumn, and ſpring, till May or June following; always raiſed by root off-ſets; one moderate crop planted annually in the ſpring, ſix inches diſtance, and two or three inches deep; which attain full growth in June or July for preſent ſupply; keep ſound till next ſummer; and the plants perpetuate their ſpecies from year to year by the off-ſet bulbs planted annually as above.

There is but one ſpecies, viz.

(Aſcalonica), æſchalot or ſhallot.

This ſpecies is deſerving of culture for its roots or bulbs, to uſe occaſionally at table inſtead of onions, being of a peculiar agreeable warm taſte and flavour, milder than the onion, and not apt, like that ſort, to impart any diſagreeable guſt or ſavor after being eaten; is therefore preferred to it in many occaſions in cookery; as alſo to ſhred ſmall to eat raw, as ſauce to roaſt and broiled fleſh, as before hinted; and is eſteemed very good and wholeſome, and is generally in much requeſt in moſt families of rank.

One crop planted annually in the ſpring, furniſhes a ſupply for the whole year; and, for family uſe, one, two, or three moderate beds may be ſufficient.

It is propagated or raiſed by the off-ſets, or ſingle bulbs, either ſmall or large; though the latter will moſt probably afford larger and finer roots in return, and ſometimes large ones admit of dividing into two or three or more ſmaller off-ſets for planting; and each root or off-ſet multiplies into ſeveral, produced in a conglobated cluſter.

The ſeaſon for planting ſhallots is February or March, but not later than the beginning or middle of April: or, in dry light ſoils, they may be planted in autumn, about the latter end of October or beginning of November, which ſometimes is productive of the fineſt bulbs for earlier uſe in ſummer following: how-

ever, the ſpring is a proper ſeaſon to plant for general good crops.

Proper off-ſets, or roots for planting, may be obtained at moſt of the ſeed-ſhops, and nurſery gardeners.

Being furniſhed with a neceſſary quantity of roots for planting, allot them an open compartment of moderately light good ground, digged, and divided into four feet and half-wide beds, and in which plant the ſets in rows lengthways, ſix inches aſunder, either with a blunt-ended dibble, two or three inches deep; or draw ſmall drills with an hoe that depth, place the roots in the drills, one row in each, ſix inches diſtance in the row, and cover them in with the earth; or in light looſe ground they may be planted, by taking each ſet between the fingers and thumb, and thruſt them into the earth the depth and diſtance as above; and in either method, when the whole is planted, ſmooth the ſurface with the rake.

When the plants come up, they only require to be kept clean from weeds till they attain full growth in the roots, for taking up for uſe in ſummer.

They generally arrive to full growth about July or beginning of Auguſt, diſcovering their maturity by the leaves withering: however, for preſent ſupply, if a few roots are particularly wanted, ſome may be taken up in their young growth in May or June, only a few at a time, as wanted for uſe; leaving, however, the principal ſupply to acquire full maturity; then take them wholly up, and ſpread to dry; afterwards cleaned from earth, fibres of the roots, withered tops, &c. and either ſome tied in bunches, or the whole diveſted of the ſtalks and leaves, and put up in bags or boxes, &c. for keeping.

SPINACH.

SPINACH.

By the Botaniſts, Spinacia oleracea, *Pot-herb, or Culinary Spinach.*

SPINACH is an annual plant, furniſhing two principal varieties, the leaves of which, being the parts for uſe, are good and wholeſome boiled, tender and delicate eating, and for which the plants merit culture in full crops, and may be obtained moſt ſeaſons of the year, if required, or principally in greateſt perfection in the ſpring, early part of ſummer, and the latter end of autumn, till November or December, or ſometimes all winter; always raiſed from ſeed ſowed annually in ſeveral crops, in ſpring, ſummer, and autumn, from January, February, or March, till Auguſt or September; but ſpring and autumn for the main ſupplies; all which ſowed principally broad-caſt, or occaſionally in drills a foot aſunder; the plants remain where ſowed, and thinned three or four to five or ſix inches diſtance: come in for uſe quickly the ſame year; and thoſe of the ſpring and ſummer ſowings run to ſeed ſoon after acquiring full growth; but the autumn-raiſed plants ſtand through the winter till next ſpring, then alſo go to ſeed, ripen it in autumn, and then wholly periſh.

The varieties of ſpinach are,

Triangular-leaved, or prickly-ſeeded ſpinach.

Round-leaved, or ſmooth-ſeeded ſpinach.

Of thoſe two varieties, the triangular ſpinach is the hardieſt and beſt ſort to ſow in autumn, for the winter-ſtanding crops, and early ſpring ſpinach; and the round-leaved, producing larger thick ſucculent leaves, not ſo hardy as the other, but of ſuperior goodneſs, is moſt eligible to ſow in ſpring and ſummer.

Theſe plants may be raiſed in very uſeful and profitable crops, both in family and market gardens. Firſt, a principal ſupply, ſowed in the ſpring months, from January, February, or March, till May, come in for uſe in a quick growth the ſame year, to gather in

April, May, and June; and ſmaller ſucceſſion crops, ſowed in June and July, furniſh a ſupply throughout the ſummer ſeaſon, if required; but the ſpring raiſed plants attain the beſt perfection in the ſize and ſubſtance of the leaves, and do not run ſo ſoon as the ſummer-ſowed crops. A ſecond principal crop, ſowed in autumn, in Auguſt, and beginning of September, both afford a production in good perfection the ſame ſeaſon, in October, November, &c. and occaſionally all winter, and furniſh large ſupplies in full growth all the following ſpring till May, until the ſpring-ſowed plants come into full gathering; then the old, winter-ſtanding plants run all to ſtalks for ſeed, which, if permitted to ſtand, will ripen plentifully in July or Auguſt following, as will alſo the early ſpring-raiſed plants, the ſame year in that ſeaſon.

Spinach ſucceeds in any common ſoil of a garden, and ſhould generally have a free ſituation, as the plants are apt to draw up weak in cloſe or ſhady compartments.

It being always raiſed from ſeed is ſowed at two principal ſeaſons, ſpring and autumn, agreeable to the following directions.

Spring and Summer Crops.

For the ſpring ſowings, have generally the round or ſmooth-ſeeded ſpinach; and the firſt ſowing may be performed in January or February in a warm ſituation, ſowed broad-caſt on the ſurface, and raked in; or occaſionally in drills a foot aſunder; and in each the plants to remain where ſowed; and when advanced with leaves an inch broad, ſhould be thinned, particularly that ſowed broad-caſt, performing it by hoe or hand, thinning them to three, four, or five inches diſtance, cutting up all weeds, or may be left only about three inches aſunder, and the plants afterwards thinned by degrees for uſe; but if gradually thinned for uſe to ſix or eight inches diſtance, the remaining plants will grow ſtrong and ſtocky, with the leaves very large and thick; and the plants having room to ſpread, will not run to ſeed ſo ſoon as where they ſtand cloſe: theſe crops, ſowed as above in January and February, come in for uſe in April and May following.

But obſerve, that as the ſpring-ſowings, after attaining full growth, ſoon after run up to ſeed, ſhould continue ſowing ſucceſſional ſupplies in March, April, and May, once or twice in each month, all in open ſituations, that the plants may advance in a ſtrong ſpreading growth: and if required to continue ſpinach throughout the ſummer and autumn, repeat the ſowings alſo in June, July, and beginning of Auguſt; managing each crop as directed above, and they will furniſh a conſtant regular ſupply for the table.

When the above crops have leaves from two or three to five or ſix inches broad, are proper to gather for uſe, either cutting up the largeſt plants clean to the root in a thinning order, or occaſionally only the large outer leaves at firſt, afterwards the whole plants, when they begin to run; or thoſe growing cloſe in drills may be cut clean off above ground, for the plants to ſhoot out again; though theſe, in this cloſe growth, will come up ſmall and ſeedy after the firſt gathering.

Crops of ſpring ſpinach, if required to make the beſt advantage of the kitchen ground, may be ſowed where plantations of cauliflowers and cabbage are intended to be planted in wide rows a yard aſunder; or between rows of beans, &c. or ſpinach and radiſhes ſowed together, the latter will come off to give room for the former to attain full growth; and the ſpinach will come off in proper time, without interruption to the cauliflowers and cabbage, &c.

Autumn and Winter Spinach.

In autumn, in Auguſt and September, ſhould always ſow a good crop of ſpinach, both to come in, ſome for uſe the ſame year in autumn, from October to December, and alſo for uſe all winter, and to ſtand for a general ſpring ſupply in February, March, and April, till May; then will ſhoot for ſeed, and be ſucceeded by the ſpring-ſowed crops.

For this autumn and winter crops have commonly the triangular or prickly ſpinach, as being the hardieſt to ſtand the winter; and allot a compartment of rich dry-lying ground, that enjoys the winter's ſun.

About the ſecond week in Auguſt is the time to ſow the main crop; for, if ſowed ſooner, the plants are apt either to go for ſeed the ſame year, or very early in the ſpring; and it will alſo be proper to ſow a ſmaller ſupply towards the latter end of the ſame month, or firſt week in September, to ſtand later in the ſpring before it runs to ſeed: generally perform each ſowing while the ground is freſh digged, &c. ſowing broad-caſt, either in a continued ſpace, or in four or five feet wide beds, moderately thin, and raked in regularly; obſerving, if, after ſowing, the weather proves hot and dry, watering will be very eſſential.

On the ſame ground where this crop of winter ſpinach is ſowed, may be planted rows of cabbage plants in September or October, the rows a yard aſunder, by one or two feet in the rows, to come in for winter coleworts, or early ſpring and ſummer cabbage.

When the ſpinach is advanced an inch or two in growth the ſame ſeaſon, they muſt be thinned and well cleared from weeds in September or October, performed either by hand or ſmall-hoeing, thinning the plants three or four inches diſtance; being careful, after this, to keep the crop very clean from running or ſpreading weeds, which abound conſiderably at this ſeaſon; and if a rainy autumn, clear the weeds entirely off the ground, otherwiſe they will ſoon grow again, to the great detriment of the ſpinach.

It is of importance to have this crop of ſpinach in four, five, or ſix feet wide beds, with alleys between, to admit of going in the alleys to give the neceſſary culture, and to gather the produce without trampling the beds to bind the ground hard about the plants.

In October and November, the ſpinach of the firſt or main winter crop will be of a proper ſize to begin gathering ſome for uſe, in which generally cut only the largeſt outer leaves; the others will advance in ſucceſſion; or where they remain very thick, ſome may be cut clean out in a thinning order, as above: afterwards in winter, gather principally the large outward leaves, aforeſaid; and they will thus furniſh a ſupply all winter till ſpring; at which laſt

laſt mentioned ſeaſon, about March and April, as the plants will increaſe conſiderably in growth, then it will be proper, in gathering, to cut them out by the root in a thinning manner; and by May will be all run to ſeed, and ſucceeded by the ſpring-ſowed ſpinach.

Saving the Seed for Sowing.

To ſave ſpinach ſeed, either ſow or leave a quantity of the earlieſt ſpring-ſowed plants, or a portion of the winter ſpinach, or of the latter, ſome beſt plants may be tranſplanted in February for that purpoſe in rows two feet diſtance; they will all ſhoot up ſtalks in May, and produce plenty of ſeed end of July or beginning of Auguſt.

TANSEY.

By the Botaniſts, Tanacetum (Tanacetum vulgare), *or Common Tanſey.*

TANSEY is a large-growing perennial-rooted aromatic herb, producing large finely-divided leaves, of a ſtrong aromatic ſcent and taſte, and which are the parts uſed in ſome culinary diſhes for table, tanſey cake, and pudding, &c. in ſpring, ſummer, and autumn; or occaſionally obtained in winter, by aid of hot-beds: is a hardy plant, raiſed by ſlips of and parting the roots in ſpring or autumn; planted, one ſmall crop, eighteeen inches or two feet diſtance, to remain; will continue ſeveral years, and produce plenty of leaves in ſpring and ſummer till winter; and the roots abiding, furniſh abundant ſupplies of leaves annually, and ſhoot up ſtrong ſtalks in ſummer, which decay in autumn.

The varieties of tanſey are,

Common tanſey, with plane leaves,

Curled-leaved tanſey.

Both the varieties poſſeſs nearly equal properties for uſe, but the curled ſort is of the ſtrongeſt flavour, and is the moſt generally eſteemed for principal culture.

They are hardy plants, that will grow in any com-

mon ſoil and ſituation; and may be eaſily and expeditiouſly raiſed by ſlips of the root; or, for immediate ſupply, full plants may be procured in ſpring and ſummer, and planted in the herbary.

To propagate or raiſe a crop of tanſey. It is effected by ſlips of or parting the roots of old plants in any of the ſpring months from February till April or May; or in autumn, in October, November, &c. when either ſlip ſome off-ſet roots and top together, or whole plants may be divided into ſeveral ſmaller ſets, with roots to each, and plant them in any bed or border a foot and half diſtance, as they ſpread conſiderably; they will quickly grow, and produce plenty of young leaves annually in ſpring and ſummer; but obſerving, as they generally ſhoot up with ſtrong ſtems every ſummer, theſe ſhould either wholly or in part be cut down in their early growth, to promote a conſtant ſupply of young leaves, as may be required, during the ſeaſon, from ſpring till the beginning of winter.

If green tanſey is required in winter, plant ſome roots in a hot-bed any time in that ſeaſon, and they will furniſh plenty of young leaves.

The culture of tanſey is only to keep the plants clear from weeds all ſummer; and in autumn, about September, October, &c. cut down all the remaining flower-ſtalks, clear the beds from weeds and litter, and dig between the plants either then or in the ſpring: likewiſe, when the plants have ſpread conſiderably, either trim or cut them in all round, or make a new plantation as above.

TURNEP.

In Botany, a Species of Braſſica or Cabbage Tribe (Braſſica Rapa*), Rapa, or Turnep.*

THE TURNEP, in its different varieties, growing with a large orbicular and round root, the principal eatable part, are moſt uſeful and very profitable crops, obtained for uſe great part of the year, or principally

cipally from May, June, July, and Auguſt, till March; but in greateſt perfection from July or Auguſt till November or December; and the young ſhoots produced from the remaining old roots in the ſpring are good and tender greens to boil; are all annual-biennial plants, raiſed from ſeed annually, ſowed in ſeveral crops from March till Auguſt, the plants remain where ſowed, and thinned from ſix or eight to ten or twelve inches diſtance, attain perfection the ſame year, and, in the early crops, run to ſeed the ſame ſummer, the others not till next ſpring, then all ſhoot for ſeed, ripening it in autumn, and wholly periſh.

The varieties of turnep are,

Early Dutch turnep (the root orbicular, round, midling ſize).
Early ſtone turnep.
Early red ſtone.
Common white round.
Green topped large round.
Red topped large round.
Yellow turnep.
Oblong turnep.
Large Norfolk turnep.
Hardy Ruſſia turnep.
French turnep (a ſmall oblong root).

Of theſe varieties, the Dutch turnep, a roundiſh orbicular depreſſed root, is the principal ſort for the early and firſt main crops, any of the other early kinds are proper to ſow to encreaſe the variety; and the common white round is a good turnep for the general crops in autumn; and the green and red topped ſorts grow to larger ſizes, very fine both for the table, and for field culture to feed cattle, ſheep, &c. but the Norfolk turnep growing very large, is principally valued in huſbandry for cattle, and the Ruſſia turnep is hardy to ſtand the winter, though all the ſorts are hardy enough to continue good throughout that ſeaſon.

Turneps are very profitable crops, both for family uſe and to feed cattle; and for which purpoſes ſhould be cultivated in large ſupplies both in gardens and

fields, and are very beneficial crops to cultivate in large field gardens for ſale in the markets.

Theſe roots, although they are eſteemed principally for boiling, are alſo by many liked to eat raw at table, &c. when quite young, in early ſummer crops, or any time in ſummer and autumn, in their ſmall young tender growth, to eat either alone as young radiſhes, or occaſionally in ſallads, they in their young ſtate being of a warm agreeable reliſh to eat raw.

They ſhould be raiſed in open ſituations and moderately light ſoils, ſuch as a ſandy loam, or any common lightiſh mellow earth, not dunged the ſame year, as in which they will proceed in a moderate growth, with the roots mild and tender, not apt to grow rank, hard, ſtringy, and hot taſted, as in ſtrong land, and generally be more agreeably flavoured; they, however, will ſucceed in any common lightiſh ground of gardens or fields.

The ſeaſon for ſowing turneps is March and April for early crops, May for a larger firſt main crop, and June and July for the principal autumn and winter turneps, and beginning to the middle of Auguſt for late winter and ſpring eating.

Or when required to have a few as early as poſſible, ſome may be ſowed in a warm border the latter end of February or beginning of March, or a ſmall portion in a hot-bed to bring them ſtill forwarder.

For the table, turneps may be obtained great part of the year, by ſowing every month from March till Auguſt; though obſerve, the early ſowings of March and April, attaining perfection in May and June, are but of ſhort duration, as they generally ſoon after fly to ſeed, but thoſe ſowed from May or June till Auguſt, continue without running; and particularly thoſe ſowed in June and July are beſt for the main autumn and winter crops; and the Auguſt ſowings continue in a ſmall growth for ſpring ſupply, as they will not run ſo ſoon in that ſeaſon as the others.

But for cattle, turneps are raiſed principally for uſe the latter end of autumn, winter, and early part of the ſpring,

ſpring, obtained by ſowing chiefly in June, July, or Auguſt.

Procure freſh ſeed for ſowing of the laſt year's ſaving, but not older than two years at moſt.

For the different crops let the ground be well digged, or for large field crops ploughed and harrowed, and generally ſow while the ground is freſh ſtirred, or before rendered too dry or wet; and in ſummer take opportunity of rain falling, if poſſible, to ſow either juſt before, or immediately after.

To raiſe early and firſt main crops, ſow a moderate crop in March and April, in a warm ſituation, a larger ſupply in May in any open expoſure; always ſowing broad-caſt over the general ſurface moderately thin, and raked in evenly, or in fields light harrowed, and afterwards rolled; or ſmall quantities in gardens may be ſowed in four, five, or ſix feet wide beds; when the plants are come up with leaves an inch broad, they ſhould be thinned and cleared from weeds, performed principally by hoe for large crops, having a three or four inch hoe, or larger, for field crops; and in dry weather proceed by cutting out the ſuperabundant plants and all weeds, thinning the crop to ſix, eight, or ten inches diſtance, and after which the cut-up plants and weeds will ſoon die, the remaining plants will advance faſt in growth, ſoon ſpread to keep down all future weeds without any further culture, and will ſupply the table, the different crops in May, June, and July.

For the general autumn and winter crops, ſow in June and July in more conſiderable quantity than the former ſowings, as they will be ſuperior in goodneſs; and for which, at this ſeaſon, take opportunity either of a proſpect of rain, or when ſhowery, or immediately after rain falling copiouſly, for this is now very eſſential; obſerving the ſame method of ſowing as before; and when the plants have leaves an inch or an inch and a half broad at moſt, hoe and thin them about eight or ten inches diſtance, or if the large ſorts, or where required to grow to the largeſt ſize for cattle, thin them from about ten or twelve to fifteen inches; and which crops will grow large and fine in Auguſt, Sep-

tember and October; and thoſe of the July ſowing will continue in good order for eating all winter till February or beginning of March; then what remains ſhoots for ſeed.

And for a late crop of ſmall turneps, ſow the beginning or middle of Auguſt, and the plants thinned ſix or eight inches aſunder, they will apple the ſame autumn, of ſmall ſize, and continue for drawing towards ſpring, and remain after the others before they run.

Obſerve, in the ſummer-ſowed crops of turneps, that as frequently the young plants, while in the ſeed leaves, of a few days old, are attacked with the fly and devoured, in which loſe no time, but dig, plough, or harrow the ground, and ſow again as ſoon as poſſible, not to omit the ſeaſon.

In drawing turneps for uſe, generally perform it in a thinning order, always taking the largeſt, or where thickeſt or crowding, the others that remain longer, having each gathering more room, will attain greater perfection in ſize; obſerving, that in the early crops, you may begin drawing when the roots are appled only an inch thick in diameter; but let the ſucceeding crops be double that ſize or more before you begin gathering.

The beginning of winter, about November or December, it is proper to remark, that although turneps are hardy enough to ſtand our ordinary froſts, it is proper at that time, for family uſe, to draw a quantity of the beſt full grown roots, cut the tops off cloſe, and depoſit them in ſand in ſome covered ſhed, cellar, or other apartment, to be ready when thoſe in the ground are frozen up, and they will be in ſuperior order for eating.

In ſpring, about February or March, when the remaining old turneps in the ground begin to ſhoot, the young tender tops, when from three or four to five or ſix inches growth, may be gathered for boiling, they being very fine ſpring greens, as before intimated, either in default of coleworts, or cabbage, and ſavoy greens, &c. or to furniſh an occaſional variety with thoſe ſorts at table.

To

To ſave good turnep ſeed, leave, or draw up a quantity of the fineſt roots either in October or November, or in Febtuary before they begin to ſhoot, taking only the handſomeſt of the reſpective varieties, that they may be continued permanent and true in their kinds, and plant them in drills, two feet and a half diſtance, inſerting the bottom fibre into the ground, and earth the whole in evenly over their crowns; they will produce plenty of ſeed in Auguſt.

TURNEP CABBAGE.

A Variety of the Cabbage Family, Braſſica (Napo Braſſica), *or Turnep-Cabbage.*

THE TURNEP CABBAGE conſiſts of two varieties, producing a large round fleſhy eatable ſubſtance like a turnep, one ſort under ground, the other above, crowned with a head of open leaves of the cabbage kind, and the turnep part, while quite young in ſummer and autumn, is uſed for table to boil and eat like common turneps, but too ſtrong and rank-taſted when old; but for field culture, to attain full ſize, are eligible food for cattle, both in the turnep part and tops in winter and ſpring; raiſed from ſeed ſowed in ſpring and ſummer, for tranſplanting two feet aſunder, or ſome remain and thinned that diſtance, they acquire full growth the ſame year, continue till next ſpring, then ſhoot for ſeed, ripening it in autumn, and then wholly periſh.

The varieties are,

Turnep-rooted cabbage, the turnep under ground.

Turnep-ſtalked cabbage, the turnep above ground.

Both the varieties are equally good for culture, and of which two or three ſmall crops may be raiſed for family uſe while quite young for variety at table, but are inferior to the common turnep, and, when old, are hard, rank, and diſagreeable to eat; they, however, are eſteemed good and profitable food for cattle for winter and ſpring eating.

Thoſe

Theſe are very hardy plants to grow in any common ſoil of a garden and fields, in open ſituations.

They are raiſed from ſeed ſowed every year in the ſpring and ſummer, principally for tranſplanting, and ſome ſowed occaſionally to remain, and thinned.

For family ſupply, ſome may be ſowed in March or April, in a bed or border, &c. in an open ſituation, a ſmall portion ſowed broad-caſt and raked in; and when the plants are three, four, or five inches high in May, June, July, tranſplant them in an open compartment two feet to a yard diſtance; and in their advancing growth hoe them clean from weeds, and draw earth to the bottom of their ſtems; they will turnep the ſame ſummer in July, Auguſt, &c. to gather in their young growth for the table, or ſome may be ſowed thin to remain; and, when the plants have leaves one or two inches broad, hoe them two feet aſunder.

Sow a ſmall portion more in May and June, to have a regular ſucceſſion of young in autumn and winter, if required.

But for large quantities in fields for cattle, in winter, &c. generally ſow in May or June for the main crop, or more in July and beginning of Auguſt for ſpring feeding; and when the plants are of three or four inches growth in July, Auguſt, September, plant them out two feet diſtance; keep them clear from weeds by occaſional hoeings, drawing ſome earth round the bottom of the ſtems; they will acquire full growth, the main crop about October for winter food, the others will advance in a ſmaller growth for ſpring; or, as before obſerved, ſome may be ſowed to remain, and the plants hoed and thinned to the above diſtance.

To ſave ſeed of theſe plants, leave or tranſplant ſome year old plants in February, they will ſhoot up ſtrong ſtems in ſpring and ſummer, and furniſh plenty of ripe ſeed in July or Auguſt.

SEA

SEA CABBAGE.

In the Botanic Syſtem, Crambe (Crambe maritima*), or common Sea Cabbage.*

THE SEA CABBAGE is a hardy perennial creeping rooted plant, producing large fleſhy waved leaves, ſpreading on the ground, and a thick robuſt ſtalk, which in its young ſpring growth, and the ribs, &c. of the young leaves in ſummer are the parts uſed, peeled to boil and eat with butter like aſparagus, and for other preparations in cookery; is not, however, in conſiderable value or eſtimation for any principal crops, and in many families is not in requeſt; the plants raiſed in the ſpring principally from ſeed, and occaſionally by parting the roots, in beds of light or ſandy earth, in rows a foot aſunder, to remain; one ſmall or moderate crop once in ſeveral years, which in the ſecond ſeaſon will produce ſhoots and leaves of a proper growth for uſe, and the roots continuing, furniſh annual ſupplies in ſpring and ſummer.

There is but one ſpecies, viz.

(Crambe *maritima)*, or ſea cabbage.

This plant growing naturally near the ſea ſhores, in ſandy and gravelly ſoils, ſhould generally in its culture in gardens have a ſoil of ſomewhat ſimilar quality, either natural or prepared, in four feet and a half wide beds, with two feet wide alleys between them, in order to furniſh earth for occaſionally landing up the beds in autumn or ſpring, to have ſeveral inches of looſe earth over the roots, that the young tender ſhoots ariſing therefrom may have ſome tolerable depth of earth to puſh through, whereby all that part within the ground will be blanched white, and be more tender and ſweet to eat; and which ſhoots, being the advancing ſtems, puſh up in the ſpring thick and robuſt, ſhould be gathered for uſe ſoon after their irruption from the earth, cutting them off ſome inches within the ſurface, others will ſucceed, and likewiſe plenty of leaves in ſummer.

To

To raiſe a ſmall crop of this plant for occaſional variety at table, it is effected by ſowing the ſeeds in the ſpring, in February or March, in beds of the lighteſt ground, in drills lengthways, the beds a foot aſunder, and the plants to remain where raiſed; alſo by planting off ſets from the roots of old plants.

But it would be of advantage to prepare a light ſandy or looſe gravelly compoſt, or a compoſt of this and the lighteſt garden earth and rotten dung together; and forming two, three, or more four feet and a half wide beds, with alleys two feet wide between the beds, as before intimated; then draw three or four ſhallow drills lengthways the beds a foot or fifteen inches aſunder; ſow the ſeed thinly in the drills, and earth them over; and when the plants come up, thin them ſix inches diſtance; keep them clean from weeds all ſummer till October, then as the leaves will decay, clear them away with all weeds on the beds, and then dig the alleys, and ſpread ſome earth thereof over each bed three or four inches deep, to remain till ſpring; at which time, about February, looſen the ſurface lightly with an aſparagus fork, that the ſhoots may puſh up freely, which in the ſecond and third year will advance of tolerable ſize to gather, as alſo the leaves for uſe; and the ſame roots continuing, will remain ſeveral years in good production of ſhoots and leaves.

Obſerve, every year, in autumn, about October or November, to clean the beds and land them up as above, and in the ſpring to fork and rake them, drawing off the rough clods into alleys; and when the alleys are ſunk low, add a compoſt of light earth and dung therein, for further ſupply to the beds when neceſſary.

When the roots after ſeveral years produce appear worn out, or ſhoot weakly in the ſtalks and leaves, make a freſh plantation in due time.

To ſave ſeed for ſowing, permit ſome ſhoots to run in the ſpring, they will produce a large head of flowers, and furniſh ripe ſeed in autumn.

THYME.

THYME.

By the Botaniſts, Thymus vulgaris *(common Thyme)*.

THYME is a ſmall perennial underſhrubby evergreen plant, a fine aromatic, its young tender tops and leaves together are the parts uſed for various culinary occaſions, obtained the year round, both in its green growing ſtate, and dried for winter; is perennial both in root and branches, raiſed principally by ſeed in the ſpring, and occaſionally by ſlips, one ſmall crop, both to remain where ſowed, and thinned ſix to twelve inches aſunder, and to tranſplant that diſtance, or ſome ſowed or tranſplanted cloſe for an edging; the plants attaining a proper growth for uſe the ſame ſummer, &c. and will continue ſeveral years, if required, in root and top, with the leaves evergreen.

The varieties of thyme for the kitchen-garden are,

1. Common thyme (ſmall leaved).
   Broad leaved thyme.
2. (Serpyllum) or mother of thyme, compriſing the
   Woolly headed thyme.
   Lemon thyme.
   Silver thyme.

But of theſe ſorts, the common ſmall and broad leaved thyme are the fineſt aromatics to cultivate for kitchen plants; ſome of the others, ſuch as the lemon thyme in particular, may alſo be admitted.

The common thyme is raiſed principally by ſeed ſowed in March or April, and occaſionally by ſlips and parting the roots.

By ſeed, is the beſt method of propagation to raiſe a full ſupply of good plants; March or April, when ſettled moderate weather, is the proper time for ſowing it, chooſing a border, or one or more four feet wide beds of mellow light earth, either ſow broad-caſt, not too thick, and rake it in lightly; or firſt rake the ſurface ſmooth, ſow the ſeed, ſmooth it down with the ſpade, and ſift ſome earth over, a quarter of an inch

inch thick, or may ſow it in ſmall ſhallow drills ſix inches aſunder, covering it in with the earth the above depth; or ſome may be ſowed in a ſingle drill to remain for an edging; if very dry weather, give moderate waterings.

In June or July, when the plants are a few inches high, thin thoſe in the beds in ſhowery weather to little bunches, or ſingly, ſix inches diſtance, and thoſe thinned out may be planted in other beds ſix inches to a foot aſunder, and watered, or ſome planted for an edging three inches diſtance in the row.

The plants will be of proper growth for uſe the ſame ſummer, and the following autumn, winter, and ſpring, and continue two or three years, or more, if required; by cutting only the ſide and top ſhoots for uſe as wanted, they will ſhoot out again; or may raiſe a young ſupply every year or two from ſeed.

But where large quantities are raiſed for the markets, they commonly pull them up root and all, and raiſe freſh ſupplies annually, ready in proper ſucceſſion.

By ſlips and parting the roots, thyme may alſo be propagated, either in the ſpring, ſlipping off a quantity of young ſide ſhoots, or clean to the bottom with roots, or large plants divided into ſeveral rooted ſlips, and plant them ſix inches to a foot aſunder, and watered.

Or where thyme is immediately wanted, procure ſome full plants in ſpring, ſummer, or autumn, with balls of earth to the roots, plant them, and give water.

To ſave thyme ſeed, permit ſome plants to flower in ſummer, they will ripen ſeed in July, which be careful to gather in due time, as it ſoon ſheds on the ground, cutting off the ſmall ſeed-ſtalks, and ſpread them on a cloth to dry; then rub out the ſeed, clean it from the huſks, &c. and put it up for ſowing next ſpring.

TARRAGON, or Dragon Herb.

A Species of the Family of Artemeſia or Mugwort (Artemeſia dracunculus), *Dracunculus, or Dragon Herb.*

TARRAGON is a perennial plant, a high-flavoured aromatic, ſhooting up with ſlender ſtems and narrow leaves, and the young tops and leaves together are the parts uſed, to give flavour to ſoups, ſallads, &c. in ſpring, ſummer, and autumn, both in its growing ſtate from February or March till October and November, and when dried in ſummer to keep for winter; or obtained green in winter by hot-beds, raiſed principally by parting the roots in ſpring, &c. and cuttings of the ſtalks in ſummer, one ſmall crop once in ſeveral years, planted a foot aſunder, to remain, will come in plentifully for uſe the ſame year, and continue ſeveral years in the roots, ſending up ſtalks and leaves annually in the ſpring and all ſummer.

There is but one ſpecies, viz.

(Dracunculus) dragon herb, or tarragon.

This plant is proper to admit in the aromatic herb collection, in a ſmall or moderate ſupply, it poſſeſſing a peculiar rich aromatic property, much eſteemed in ſeveral culinary occaſions, and in ſpring, ſummer, and winter ſallads.

It is moderately hardy to grow in any of the common borders, beds, &c. but if ſome are planted under a warm wall, they will ſtand the winter better, and furniſh early ſhoots for ſpring uſe: and may be planted in ſpring either in full plants for immediate ſervice, or by ſlips or rooted off-ſets of old roots, ſet a foot diſtance, or by cuttings of the ſtalks in ſummer, and in all of which they will produce abundance of young tender ſhoots and leaves in February, March, April, and continue in an advanced growth all ſummer; and ſome roots planted in a hot-bed any time in winter will furniſh young green ſhoots in that ſeaſon, or in

ſummer

ſummer a quantity may be cut in June or July, and dried to keep for winter uſe.

To propagate or raiſe a ſupply of this plant. It is eaſily effected by ſlips of or parting the roots in ſpring or autumn, and by cuttings of the young ſtalks in ſummer, or occaſionally by ſeed.

By ſlips and parting the roots, perform it either in the ſpring, about February, March, or April, or in the autumn, in September or October, either taking off ſome ſide off-ſet rooted ſlips, or divide the roots of whole plants into ſeparate ſlips with roots to each, and planted a foot diſtance in a bed or border, they will grow freely; and thoſe planted in ſpring will produce plentiful ſupplies of ſhoots and leaves for uſe the ſame ſeaſon; and the roots will continue ſeveral years.

Or by cuttings of the ſtalks in ſummer, which may be done in May, June, and July, while the ſhoots are green, taking opportunity of ſhowery weather, cut off a quantity of the ſtrongeſt ſtalks ſix inches to a foot long, plant them a foot diſtance, watered at planting, and occaſionally afterwards in dry weather; they will ſoon emit roots below and ſhoots at top, and form good plants the ſame year, and will continue by the roots of ſeveral years duration, to furniſh a plentiful production of young ſhoots annually all ſpring and ſummer.

Likewiſe to propagate or raiſe a ſupply by rooted ſlips, in young ſhoots it may be effected in the ſpring, about March and April, at which ſeaſon many young ſhoots riſing from the bottom, a quantity may readily be ſlipped off with roots, and planted as above, they will quickly grow and make good plants.

Or to raiſe a ſupply from ſeed, ſow it in March or April, in a bed or border of light rich earth, either in ſmall drills or broad-caſt, and raked in; and when the ſeedling-plants are come up two or three inches high, in ſummer, prick them out ſix inches aſunder; give proper waterings, and continued in advancing growth till September, then may be thinned out, leaving ſome a foot apart, the reſt plant in another place the ſame diſtance.

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The plants raiſed in the different methods will furniſh plenty of ſhoots and leaves annually from February or March, all ſummer, till October or November; and in ſummer ſome may be cut and dried for winter ſervice in culinary occaſions.

In their growth, all the culture they require is to have the beds kept clean from weeds all ſummer till October or November, then to cut down all remaining and decayed ſtalks cloſe to the bottom, and hoe off all weeds that appear, and then, or in ſpring, dig or looſen the ground ſlightly between the plants; and obſerving, if the plants, after two, three, or ſeveral years, ſhoot weak, or appear in a dwindling or decaying ſtate, make a freſh plantation of young ſlips or cuttings, and as in the foregoing directions.

To gather the plants for uſe, they are proper when the ſpring and ſummer ſhoots are from two or three inches long till arrived to full growth in June, July, &c. at which time a quantity may be cut, ſpread to dry, then tied in bunches and houſed.

Or to continue a ſupply of tender young ſhoots all ſummer, cut down the ſtems of ſome in May, June, &c. and the plants will produce young ſhoots from the bottom in proper ſucceſſion.

When required to have green tarragon in winter, tranſplant ſome full rooted plants into a moderate hot-bed any time in that ſeaſon, or ſome in pots may be placed in a hot-bed or hot-houſe; they in either method will grow freely, and afford a production of young ſhoots for ſallads or other occaſions.

MUSHROOM.

By the Botaniſts, Agaricus campeſtris, *Field Agaric or Muſhroom.*

THE MUSHROOM is a ſmall plant of the fungi tribe, growing but two or three inches high, with a convex white fleſhy head, the eatable part, obtained by garden culture moſt times of the year, in ridge-form dung hot-

hot-beds under a thick covering of ſtraw, is of but a few days duration in its growing ſtate, in the ſame individual, but ſucceeded by others from the ſpawny radicles below in a numerous regular ſucceſſion for ſeveral weeks or months; raiſed by a ſpawny production of a white, fibrous, rooty-like nature, commonly called ſpawn; formed in dry rotted dung from the ſuppoſed inviſible ſeed diſſeminated to ſoils and ſituations adapted to its peculiar growth, and which being found in cakey lumps of rotted horſe-dung, earth, &c. in ſummer and autumn, &c. and the ſpawny lumps being planted into the ſloping ſides of a ridge-ſhaped hot-bed, as above-mentioned, previouſly reduced to a very moderate heat, the ſpawn and the whole bed afterwards earthed over an inch depth, and the bed then cloſely covered with dry ſtraw a foot thick, will produce muſhrooms in four, five, or ſix weeks.

There is but one wholeſome ſpecies, viz.

Common white muſhroom, with reddiſh lamella or gills underneath.

The true wholeſome muſhroom grows with a ſhort robuſt ſtipes or ſtem, crowned by a convex white head, thick, fleſhy, and of an agreeable ſmell, and diſtinguiſhed by the red lamella or gills underneath, from the ſpurious or poiſonous ſorts; grows naturally both in paſtures, horſe-dung-hills and dungy compoſts, decayed dung hot-beds, &c. but as there are alſo ſeveral poiſonous ſpecies of the fungi tribe which grow in meadows, paſtures, woods, &c. having ſome white, others yellow lamella, whereby they may be diſtinguiſhed from the true red gilled muſhroom, which always diſcovers the reddiſh lamella, and agreeable muſhroom ſmell; therefore thoſe who gather muſhrooms in fields ſhould be cautious to collect only the true ſort, as above.

Reſpecting the production and propagation of the muſhroom, the botaniſts have been long divided in opinion; ſome ſuppoſing it is produced entirely from the putrefaction of dung and earth, others contend that it is a perfect plant, producing ſeed like other vegetables for its propagation, but that the ſeed ſtill remains concealed,

concealed, or ſo exceedingly minute as to be inviſible, and that the plant when arrived to full growth diſperſes it on the adjacent ſoils, or conveyed by the winds and air to diſtant ſituations, where it grows and forms what is called muſhroom-ſpawn.

However, in the production of muſhrooms by the proceſs of garden culture, they are always raiſed from the ſpawn before obſerved.

This ſpawn is found moſtly in a natural production, in lumps of dry rotten dung, moſt prevailing in horſe-dung; alſo in dungy compoſts, old or decayed hot-beds, &c. likewiſe in paſture-fields and meadows, under the turf; but this is not to be depended on, being neither ſo ſtrong and prolific, nor certain of being always the true wholeſome ſort, as that of dung, and in which it may be obtained moſt times of the year, but in the greateſt plenty and perfection in ſummer and autumn, from June, July, and Auguſt, till November or December, before periſhed by the wet and froſt; appearing in cakey lumps, like fine, white radical fibres, and, if good, generally emits a diſtinguiſhable ſmell of the muſhroom; may be collected at any time when it occurs, taking the lumps of dung, &c. and ſpawn together, and depoſited in the dry, cloſely covered with ſtraw or mats, it will keep good ſeveral months, or till wanted for ſpawning muſhroom-beds when made.

About London there are muſhroom-ſpawn collectors, who, at the proper ſeaſon, gather large quantities for ſale to the kitchen-gardeners; alſo to the nurſery-men, to ſupply noblemen and gentlemen's gardeners, who cannot always obtain a proper ſupply, being commonly ſold at five or ſix ſhillings per buſhel, or ſometimes more, in ſcarce years.

The moſt likely places to find good ſpawn is where plenty of horſe-ſtable dung, the moiſt litter and dunging of the horſes together, has lain moderately dry and undiſturbed for ſeveral months, and is become of a dry rotted ſtate, ſuch as horſe-dung hills and compoſts of the ſame ſort of dung and earth, decayed dung hot-beds, hog-dung heaps, and old muſhroom beds; likewiſe in horſe mill-tracts, where horſes are employed under co-

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ver in working mills, machines, water engines, &c. alſo in covered horſe-rides in livery-ſtable-yards, where horſes are exerciſed; in which, and the horſe mill-tracts, is generally found the moſt excellent maiden-ſpawn, of a ſtrong productive quality: alſo ſometimes under old hay-ſtacks; gathering the lumps or cakes of dung, containing the ſpawn, and depoſit them under cover; firſt obſerving, if the lumps are wet, ſpread them out for a day or two to dry, then carried into ſome ſhed, any dry room, cellar, or other apartment, laying the ſpawny lumps together in an heap, and cloſely covered thick with ſtraw or mats, to exclude the air, wet, &c. till wanted for uſe: the ſpawn will thus continue in good condition ſeveral weeks or months if required.

The ſeaſon for making muſhroom-beds is principally Auguſt, September, or October, for autumn and winter production; alſo in winter and the ſpring, to produce in thoſe ſeaſons, and in ſummer; though theſe beds may be made and ſpawned at any ſeaſon of the year when required, or when a ſufficiency of ſpawn can be obtained.

The proper quantity of ſpawn is at the rate of two, three, or four buſhels to a bed of from fifteen to twenty or thirty feet long, and in proportion for a bed of fifty or an hundred feet in length.

As muſhroom-beds are a kind of hot-beds, made with hot dung in a long ridge, four or five feet wide at bottom, ſloping on both ſides to a narrow ridge at top, about four feet perpendicular height, a proper quantity of freſh horſe-ſtable-dung muſt be procured, the long and ſhort moiſt litter and dunging of the horſes together, abounding in a freſh lively ſteamy heat; fork the whole up in a mixed order, in a large heap, for a fortnight or more, to prepare it to an equal proper temperature, turning it over once or twice in the time, to diſcharge the rank noxious ſteam, and to ſubdue the burning quality more effectually; then made into a bed.

Make the bed in a dry ſheltered ſituation in the full ſun, in dimenſions four or five feet wide at the bottom, in length from ten, twenty, or thirty, to forty or fifty feet or more, with both ſides ſloping, and raiſed four or five

five feet high, beating the dung down close and firm with the dung-fork as you advance, narrowing each side gradually till they meet in a ridge at top, in form of the roof of a house, that it may more readily shoot off the falling wet, and keep of a dryish temperature, agreeable to the peculiar delicate nature of the spawn; which is to be planted, the lumps of dung and spawn together, into both the sloping sides of the bed, when the heat is reduced to a very moderate warmth; as too much heat, cold, or wet, would soon destroy its vegetative quality; therefore, as a more certain guide to judge when the heat is reduced to the requisite moderate degree, have some long sharp-pointed sticks thrust down into the bed, which drawing up occasionally, or every day, feeling the lower ends will discover the temperature of the heat.

Then observing, in a fortnight or three weeks, or more or less time, according to the substance and length of the bed, when the heat is become of a very mild warmth, not before, (mark this), the lumps of spawn are then to be planted, first breaking or dividing the large cakes into smaller pieces, and then deposited into both sides of the bed, either placed entirely upon the surface, five or six inches asunder, or inserted just within the dung the same distance, in regular order, quite from the bottom to the top, smoothing the whole down gently with the back of a spade close and evenly; then earth the bed and spawn all over, equally, with light fine mold, an inch and a half or two inches thick, not more, beginning at the bottom, and earth it regularly upward quite over the top of the bed, and smooth it down lightly with a spade aforesaid: or, in spawning, by placing the spawn entirely on the surface of the bed upon the dung, instead of inserting it therein, begin the first layer in a row along the bottom, and earth it over the above depth; then place another row upon the dung, resting it on the upper edge of the first coat of earth, and earthing it over as the preceding layer; place the next row of spawn in the same manner, and earth it over equally the same thickness; and thus proceed laying the spawn, and earthing it as you advance, row and row,

till the bed is wholly ſpawned on both ſides, from the bottom to the top; and if any ſmall ſpawn remains at laſt, ſpread it evenly upon the top of the ridge, and earthed over as the former, ſmoothing the whole down evenly with the ſpade, as before obſerved: and this method of ſpawning often proves more ſucceſsful than ſpawning in the dung; as, when the ſpawn begins to run, it ſooner and more effectually ſends its radicles into the earth, as well as along the ſurface of the dung at the ſame time, ſpreading abundantly every way for a plentiful production: and then obſerving, in either method of ſpawning, and the whole earthed over with the caſing of fine mold as above, the bed is to be covered all over with dry ſtraw, or clean dry horſe-ſtable-litter, a foot thick, conſtantly to remain, to exclude the external air, rains, cold, &c. to preſerve the ſpawn dry and warm.

Sometimes muſhroom-beds are ſpawned in the earth; that is, firſt earthing the bed all over about an inch and a half thick, inſert the pieces of ſpawn therein, then add a finiſhing covering of earth over the whole an inch thick, ſmoothing it down evenly with the ſpade, and cover the bed with ſtraw as above.

The earth for earthing muſhroom-beds may be of any rich light garden mold; or if a light mellow loamy ſoil, or a compoſt of this and rich garden earth, the muſhrooms will generally come up ſtronger, with larger thick fleſhy heads.

Then with regard to covering the bed with ſtraw after ſpawning, this may either be done as ſoon as ſpawned, if a moderate bed of a mild heat; or if a ſtrong bed of conſiderable length it is rather adviſable to defer covering for a week or more, eſpecially if dry weather, for fear of too great after heat in the dung, after being caſed over cloſe with the earth as above, confining the ſteam more cloſely in the bed, ſo only defending it occaſionally above, if much rain, with litter or mats; and when diſcovering a ſettled moderate warmth, by the trying ſticks as before directed, cover the bed all over with ſtraw, only half a foot thick at firſt, and augmented by degrees to double that thickneſs or more, which concludes the work; retaining the covering conſtantly

ſtantly night and day; and in winter, or very wet weather, cover over all with large thick garden mats, to ſhoot off the falling wet more effectually.

The bed thus completed, it, if of a kindly moderate warmth, will ſoon ſet the ſpawn in motion, running out into numerous fibres all over the bed, form numerous minute white knobs (the embryo plants), and will produce muſhrooms for gathering in from about a month to five, ſix, or eight weeks; and ſometimes continue two, three, or ſeveral months in production.

The gathering the produce ſhould be performed when the muſhrooms are from the ſize of round buttons to half or full growth, but before they become large flaps; obſerving, when you intend to gather, to take opportunity of dry weather, turning off the ſtraw covering; then gather all of the above ſizes, detaching them with a gentle twiſt clean to the bottom, not cut them off to leave the ſtump or root-part of the ſtem, which would rot or become maggoty, and damage the adjoining advancing young heads; and, as ſoon as the gathering is performed, directly ſhake on the covering of ſtraw again over the bed, to defend it conſtantly from wet and cold; and it will thus afford a ſucceſſional ſupply for gathering ſometimes two or three times a-week, when in full production; afterwards, probably not more than once a-week or fortnight; and, in its more advanced or declining ſtate, the production will be more ſparing and leſs abundant in proportion.

If a muſhroom-bed either in its early or advanced ſtate happens to work unkindly, or produce ſparingly, or ſuddenly decline in heat and production, and the ſpawn at the ſame time appears lively and good, try to revive it, by removing the ſtraw-covering, then apply a quantity of warm dryiſh horſe-ſtable litter next the bed, half a foot or a foot thick, covering this with dry ſtraw; it will throw in a freſh moderate warmth to enliven the bed and ſpawn, and promote a more plentiful continued production.

For ſometimes a muſhroom-bed, after ſpawning, will remain two, three, or four months, or more, in a dormant or unproductive ſtate, and afterwards commence

bearing in great abundance and perfection, in long continuance; that when any bed aſſumes this reluctancy of production, it ſhould not be too haſtily diſturbed, eſpecially if the ſpawn appears in good condition, as ſometimes a bed, after remaining dormant five or ſix months, will at laſt produce plenty of fine muſhrooms.

Obſerving, occaſionally, after very heavy rains and ſnow, to examine the covering of ſtraw over the bed, and if rendered very wet, almoſt or quite through, remove it directly, and apply ſome dry ſtraw next the bed, and over this the drieſt of the old covering; for much wet would inevitably deſtroy the ſpawn, as being of a moſt delicate temperature, impatient both of great moiſture, cold, and immoderate dung-heat in the bed.

In beds that are in production, in ſpring and ſummer, they, in fine warm ſettled weather, if the earth is very dry, may ſometimes have a moderate watering, applied as lightly as poſſible; or ſometimes expoſed to a moderate warm ſhower for half an hour or an hour; and covered over again with the ſtraw covering.

Muſhroom beds are ſometimes made under cover, either of a glaſſiary of conſiderable extent, either that of a common hot-houſe form, or with a double-ſloped top, like the roof of an houſe, and ſometimes under an awning of painted canvas or thatched roof, ſupported a proper height upon ranges of poſts on each ſide; or occaſionally in ſome long covered ſhed; and in either of which, the bed covered thick with ſtraw, as in the common method; and in which the bed being thus more effectually defended from the weather, it will not be ſo liable to injury from rain, ſnow, and froſt, as thoſe in the full air, and may thereby, in being always dry and warm, prove more ſucceſsful in its production, and longer continuance in bearing.

Sometimes alſo muſhroom-beds are made flat, in the form of common hot-beds, and covered with frames and glaſſes; making the bed for one, two, or ſeveral three-light frames, a yard high; and when reduced to a very moderate warmth, place the ſpawn on the ſurface upon the dung, and earthed over one or two inches thick with

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light rich mold or fine loam; then covered a foot thick with dry hay or ſtraw-litter, and put on the glaſſes, to remain conſtantly: a bed thus made will ſometimes bear in tolerable perfection and abundance.

I have alſo, in autumn or winter, in examining decayed dung hot-beds, and diſcovering a tolerable quantity of natural ſpawn formed in the ſurface of the dung and earth of the beds, continued the frames on the bed, and covered the earth within the frame with hay or ſtraw a foot thick, put on the glaſſes, and ſometimes applied a lining of hot dung to the ſides of the bed; defending alſo the outſide of the frame with long litter; and have thus had a large production of very fine muſhrooms; and in which I have obſerved where the earth of the beds happened to be principally of a fine rich loamy nature, the muſhrooms grew remarkably thick and fleſhy.

In ſummer, if pieces of ſpawn are placed along upon the outward top edges of any late cucumber or melon hot-beds, in June, July, inſerted a little into the dung, cloſe to the frames, or introduced a little way under the bottom thereof, or alſo upon the hand-glaſs ridges, earthed over an inch or two deep, and covered, that on the outſide with ſome dry litter or mulch, the moderate warmth of the bed will ſet the ſpawn a-running, and will ſometimes furniſh good muſhrooms in autumn.

To ſave muſhroom-ſpawn for future beds, be always careful in removing of any old dry rotted dung, decayed hot beds, old muſhroom-beds, and all places where ſpawn is occaſionally found, to collect it from time to time as it occurs, and depoſit it in ſome covered dry place, and cover it over with ſtraw or mats; it will keep ſeveral months.

LIQUORICE.

By the Botaniſts, Glycyrrhiza *(Sweet-root)*, Glycyrrhiza glabra, *or ſmooth-podded Liquorice.*

LIQUORICE is an herbaceous perennial, with a very deep-ſtriking woody ſweet juicy root, the uſeful part; producing upright ſtems with winged leaves in ſpring, decaying to the ground in winter; and the root continuing in growth ſeveral years, till of a large ſize, furniſhes a ſweet ſugary juice, of great value in medical preparations, and for which it is cultivated in large quantities in ſome market-kitchen-grounds, and in fields, to ſupply the druggiſts, &c. raiſed by cuttings of the ſmall ſide-roots in the ſpring, planted in rows three feet aſunder, by twelve to eighteen inches in each row; and in their growth runs with a downright main root, three or four feet deep, which in three years generally acquire a proper ſize to dig up for uſe; and furniſh plenty of ſide-ſhoots to propagate and perpetuate the ſpecies.

One cultivated ſpecies, viz.

Smooth-podded or common liquorice.

This plant is only recommended for culture in ſuch gardens where it may be particularly required, either in ſmall ſupplies for domeſtic occaſions, or in large quantities for ſale, in which it, in proper deep ground, proves a very beneficial crop, where the root hath an eligible depth of good ſoil, to acquire a conſiderable length and due ſize to weigh in proportion, as being commonly ſold by weight.

Liquorice is a hardy plant, to grow in any open ſituation, and requires a lightiſh deep ground, two or three ſpades at leaſt; if of a ſandy loamy nature, the greater advantage; it however will thrive in any common lightiſh deep ſoil.

It is propagated by planting cuttings of the ſmall ſide horizontal roots, emitted from the ſides of the main perpendicular ones, procured generally when the old or

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full grown roots are digged up for uſe, being generally performed in winter; and the ſmall roots being then cut off, divide them into ſets of ſix inches long, may be tied in ſmall bunches ready for planting, placing them in the ground till the proper ſeaſon, February or beginning of March.

The ground for this crop ſhould be trenched two or three ſpades deep, if the ſoil admits.

Then any time in February, in open weather, they may be planted; performing it by dibble in rows two feet and a half or a yard aſunder, by eighteen inches in the lines, inſerting them perpendicularly wholly into the ground, cloſing the earth well about each cutting; and when all is planted, may ſow a crop of onions on the ſame ground the firſt year, which will acquire a proper growth without any impediment to that of the liquorice, or this to the onions; as the liquorice will riſe but of ſlender growth the firſt ſeaſon, conſiderably ſtronger the ſecond, afterwards will riſe with ſtrong ſtems, three or four feet high, and the roots will be encreaſed in growth in proportion, and in three years will be of proper ſize to dig up for uſe.

Every ſummer keep this crop clean from weeds in their young growth by occaſional hoeing; in their more advanced ſtate the ſtems and leaves will ſoon cover the ground, and keep down the weeds.

In October the ſtems decay, and ſhould be all cut down cloſe to the ground; hoe and rake off all large weeds; then, or in ſpring, lightly dig the ground between the rows in a level order.

After three or four years growth the liquorice roots will be of proper ſize to take up, which work generally perform in winter, any time from November till February; beginning at one end, dig a deep trench cloſe to the firſt row of plants two or three ſpades deep, or to the depth of the roots, having a mattock to aſſiſt in going to the full depth, and to ſtrike the extreme part of the roots clean out to the bottom; and one trench thus finiſhed, begin another, turning the earth into the firſt the ſame depth, digging out all the roots as in the other, and ſo proceed till the whole is digged up; col-

lecting the roots together, and tied in bundles, and placed under cover, till they are otherways diſpoſed of, as intended.

The ſmall ſide-roots, as many as wanted, may be ſaved to plant, for new plantations.

To have a crop of proper growth to dig up annually, there ſhould be three different plantations advancing at the ſame time, in ſucceſſional order, each one year's planting and growth before the other.

STRAWBERRY.

In the Botanic Syſtem, Fragaria (Fragaria *veſca*), *Eatable or Common Strawberry.*

THE STRAWBERRIES, conſiſting of ſeveral varieties, are hardy perennial herbaceous plants, cultivated principally in kitchen-gardens, the general crops, and in which are highly deſerving of culture in ſome conſiderable ſupply, for their plentiful production of fine refreſhing table fruit in ſummer; ripe in June, July and Auguſt, and, in ſome varieties (Alpine) continue bearing from June till October; the plants all eaſily raiſed both by young ſide off-ſets, and by detached young runner plants produced from the flagellate ſtrings, or creeping running ſhoots, in ſummer, and planted either the ſame ſeaſon, or in autumn or ſpring following, in four feet wide beds, fifteen to eighteen inches diſtance, one crop in ſeveral years, and will bear, ſome ſorts, as the Alpine ſtrawberry, a few the firſt ſummer, but the others not in any tolerable production till the ſecond and third year; and the ſame plants will continue and improve in perfection of bearing four, five, or ſix years; when, as probably they will decline both in quantity, ſize, and quality of the fruit, it is proper, a year or two before, to make a new plantation, to be ready for ſucceſſional full bearing.

The varieties of the ſtrawberries are,

Common ſcarlet ſtrawberry.

Imperial ſcarlet ſtrawberry (large).

Wood

Wood ſtrawberry (white).
Red wood ſtrawberry.
Green wood ſtrawberry.
Hautbois ſtrawberry.
Globular-fruited hautbois ſtrawberry.
Oval-fruited hautbois ſtrawberry.
Conical-fruited hautbois ſtrawberry.
Chili ſtrawberry (leaves largeſt, fleſhy and hairy, very large fruit).
Globular Chili ſtrawberry.
Conical-fruited Chili ſtrawberry.
Dutch Chili ſtrawberry.
Devonſhire Chili ſtrawberry.
Carolina Chili ſtrawberry.
Alpine or monthly ſtrawberry, bearing from June till October or November, the fruit conical; compoſing the
Red Alpine.
White Alpine.
Pine-apple ſcarlet ſtrawberry (the fruit conical).
Green pine apple ſtrawberry.

Theſe being the principal varieties of ſtrawberries, they furniſh many intermediate ones of the fruit, not however differing very materially; and thoſe above mentioned being the ſuperior permanent ſorts, are ſufficient for general culture, and afford a diſtinguiſhable variety of fine fruit for the table, and of which the ſcarlet ſtrawberries are the earlieſt, and very plentiful bearers, fine rich juicy fruit, ripe in June and July, very proper to plant for a principal crop. The wood ſtrawberry, much ſmaller than the ſcarlet, ſucceeds them in bearing in July; is eſteemed for its peculiar poignant flavour, and much admired to mix and eat with cream, and a very deſirable ſort to cultivate; but the hautbois and Chili kinds are much the largeſt fruit, ripe middle of June, July and Auguſt, of a firm fleſhy nature, and peculiar muſky flavour, particularly the hautbois; though the Chili ſtrawberry is conſiderably larger than the hautbois, greatly ſurpaſſing all other ſtrawberries in its ſingular large ſize, a moſt beautiful fine fleſhy delicious fruit for the table; and both of which large kinds merit

culture in conſiderable plenty. The Alpine ſtrawberry is a great bearer, in long continuance, a moderate ſized fruit, of an agreeably tartiſh vinous reliſh, in much eſtimation both for the deſſert, and to eat with cream; and valuable for its long production and peculiar mode of bearing, differing from all the other varieties by producing fruit on the young plants of the ſame year, both of the young off-ſets emitted cloſe round the ſides of the main heads, and the young runner plants formed at the joints of the extended runners, or ſtrings, as they advance in length, rooting in the earth, flowering and fruiting every month in ſucceſſive order from June till October or November: and the pine-apple ſtrawberry is admired for its rich flavour, ſimilar to that of a pine-apple, a moderate ſized conical fruit of a firm fleſhy ſubſtance, ripe in July and Auguſt.

Theſe plants are all very hardy to grow in any common ſoil, and in moſt ſituations, in beds, borders, ſides of ſunny banks, edgings, &c. though, as to ſituation, it is eligible to allot them moſtly a ſunny expoſure, to have the full benefit of the ſun to ripen the fruit with a rich flavour; however, the wood ſtrawberries, natural inhabitants of ſhady woods in England, &c. will ripen fruit in perfection both in ſhady places and open compartments; and all the ſorts may be eaſily and abundantly raiſed by the young off-ſets and runner plants of the year, or a year old, planted in ſpring, ſummer, or autumn, not leſs than fifteen or eighteen inches diſtance, to have room between for the runners to extend in ſummer without crowding the main plants; and they at this diſtance being kept to ſingle bunches, free to the ſun and air in their advanced growth, will bear in the greateſt plenty, the fruit grow to the largeſt ſize, and ripen in ſuperior perfection.

But in the different varieties of ſtrawberries, it may be proper to have ſome planted both in warm ſouth borders, banks, &c. for earlieſt production, and larger quantities in open compartments for the principal ſupplies of fruit in the general ſeaſon; and they will thus afford a ſucceſſion of ripe fruit from June till Auguſt;

guſt; and the Alpine ſort continue in bearing till the end of autumn, as before remarked.

Or ſtrawberries may alſo be obtained in early production in ſpring and beginning of ſummer, by forcing in hot-houſes, forcing-houſes, hot-walls, and hot-beds; having for this purpoſe two years old plants in pots, of a proper age for bearing, and introduced in theſe forcing apartments in December, or January, or February, &c. they will produce ripe fruit in February, March, or April, till May and June, or till ſucceeded by the natural ground crops.

For plantations of ſtrawberries, a moderate loamy ſoil, if the garden affords it, proves favourable to theſe plants in promoting plentiful productions of large fruit, and in continuing them ſeveral years in a good bearing ſtate; but all the ſorts will alſo ſucceed and bear abundantly well in any common good garden ground, as before obſerved; and in a lightiſh well-enriched mellow ſoil the fruit will ripen in earlieſt perfection, and with a full flavour; however, as choice of ſoil does not always occur, generally allot them compartments of the beſt, or as good ground as the garden affords; and, as the ſame plants continue ſeveral years where planted, it is adviſable, in preparation for planting, to give the ground an enrichment of good dung, and digged in one ſpade deep.

In making plantations of ſtrawberries, give particular attention, in procuring the ſets for planting, both to have them from plants of good ſorts of their reſpective kinds, and from ſuch as are of a full bearing age, of two or three years growth, and which are known good bearers; not from old worn-out ſterile plants; being ſure to remark this, which is of particular importance.

All the varieties of ſtrawberries are abundantly propagated and raiſed by the runner young plants ſent out annually in ſummer from the main heads, and which may either be detached and planted the ſame ſeaſon, any time from June, July, Auguſt, till September or October, &c. or in the following ſpring; alſo by the

ſide off-ſets produced cloſe round the ſides of the mother plants in ſummer, and may likewiſe be planted the ſame time as above; and each, if in ſummer, either pricked in a ſhady border five or ſix inches diſtance, to grow ſtrong till autumn or ſpring, for final tranſplanting; or in ſummer, autumn, or ſpring, planted at once where they are to remain, in beds, borders, &c. at fifteen to eighteen inches, or two feet diſtance, they will encreaſe into large bunches, and bear the ſecond year; obſerving, as they every ſummer will ſend out many runner young plants over the ſurface of the beds, it is adviſable in moſt ſorts, where not wanted for planting, to trim away theſe extended runners, either according as they are produced, or in autumn or ſpring after, to continue the main plants in ſeparate diſtinct bunches, in which they will bear and ripen the fruit in greater perfection; though in the Alpine ſtrawberry in particular, as theſe bear in ſucceſſion on the runner plants of the ſame year, the runners may be continued till their bearing ſeaſon is over.

To raiſe ſtrawberries from the young runner plants is the moſt adviſable method for the general ſupplies, as theſe are produced annually in ſummer in great abundance upon the running rooting ſtrings, or *flagelli*, which at every joint ſtrike root in the earth, and form young plants above, of a proper growth to detach and plant, either the ſame ſeaſon, any time from June till October, or in the enſuing ſpring; though if taken off in June or July, and either planted to remain, or rather at this ſeaſon pricked in a ſhady border in the nurſery way ſix inches aſunder, to grow till autumn, they will make fine ſtrong plants for final tranſplanting in September or October; obſerving, however, in detaching them from the mother ſtools, to chuſe principally thoſe near the main head, or not exceeding the ſecond or third joint of the runners, as being firſt produced will be of ſtrongeſt growth, taking them up with full roots, cut off the ſtrings cloſe to each ſet, are then ready for planting, either where they are to continue, in beds, borders, &c. fifteen to eighteen inches diſtance,

or,

or, if in ſummer, to prick them in the nurſery order in a ſhady border, as above mentioned, to grow ſtrong till autumn or next ſpring; then tranſplanted finally.

Or to propagate them by ſide off-ſets riſing immediately at the ſides of the main plants, chuſe only thoſe that are of but one or two ſummers growth at moſt, with roots well furniſhed with young fibres; not old ſets with naked woody roots; and which may either be detached in ſummer, autumn, or ſpring, cutting off any adhering ſtrings and hard woody root part at bottom, then to be planted as adviſed for the runner plants.

For the general plantations, allot principally a free ſituation expoſed to the full ſun, either in open compartments, divided into beds, or in borders, banks, or ſome in warm ſouth borders for earlier production, having the ground enriched with dung, and neatly digged one good ſpade deep; and if in a large compartment, lay it out in beds four feet and a half wide, with alleys two feet wide between the beds; and in which, and in borders, &c. plant the ſtrawberries, the large ſorts, as the ſcarlets, hautbois, and Chili kinds, not leſs than fifteen to eighteen inches diſtance, or in rows two feet aſunder by eighteen inches in the rows, the woods not leſs than a foot or fifteen inches; and the Alpine ſtrawberry generally plant half a yard or two feet aſunder, to admit of proper ſcope between for the runners of the year to extend and bear as they advance in length the ſame ſeaſon; and in all of which give water at planting, and afterwards occaſionally, as required, in dry weather, eſpecially thoſe planted in ſummer and ſpring, till they have taken good root, and begin to grow.

But ſtrawberries may be planted as above in different ſituations, to have fruit ripen early and late; the principal ſupply always plant in ſunny expoſures, as before adviſed, others in ſhady places; and ſome may be planted in patches diſperſed in different flower-borders and fronts of ſhrubbery compartments, and in edgings to particular borders of the kitchen garden or pleaſure ground; and of the wood ſtrawberry, the main ſupply being planted in open ſituations in the ſun, ſome

may

may be introduced in ſhady borders, edges of ſhrubberies, the borders of wood walks, or in edgings along near buſhes, ſhrubs, &c. to produce late fruit.

The above diſtance adviſed to plant ſtrawberries is more than is commonly allotted for theſe plants; but by allowing proper ſcope between them for the runners to extend in ſummer without crowding or incommoding the main plants at the time of their bloſſoming and fruiting, they will bear in ſuperior perfection both in quantity, ſize, and goodneſs of the fruit.

Strawberries may alſo be occaſionally planted in pots, in order for removing in ſaid pots to any place required when in flower and fruit.

Likewiſe, when intended to force ſtrawberries to early fruiting in hot-beds or hot-houſes, &c. ſhould always have a ſupply of ſcarlet and Alpine kinds planted in pots to attain a bearing ſtate ready for that occaſion. See the directions for forcing them.

After planting ſtrawberries, give neceſſary waterings in dry warm weather, till they take root, and begin to advance in growth, keep the whole clean from weeds by occaſional hoeing and hand-weeding all ſummer; and, to encourage the main plants, the ſtrings or runners as produced in ſummer may be cut off cloſe, thereby both ſtrengthen their growth, and keep them to ſingle bunches; or in the Alpine kind in particular, part of the beſt runners ſhould be retained, to bear in ſucceſſion the ſame year.

The plants will thus advance freely in growth, and in a year or two be encreaſed into full bunches, and the ſecond ſummer moſt of the ſorts will begin to bear; or the Alpine kind in particular, planted in ſpring or ſummer, will bear the ſame year both on the mother plants and the advanced runners; but after the firſt or ſecond ſummer growth, all the ſorts will come into full bearing, and continue producing in good perfection three or four to five or ſix years, or more; but as when they are old they often become ſterile, that although they may bloſſom abundantly, yet the flowers are apt to have the ſtamina or male parts either deſtitute of the anthera, or the fertilizing powder thereof, and without

without which generative male parts, to impregnate the central female organ, they prove abortive, and the fruit either wholly fails, or is ſmall, ill formed, and not well flavoured; and in which caſe, new plantations of young plants from full bearers ſhould be made in due time, to be ready to ſucceed the old ones in bearing, when they decline as above.

During their ſummer's growth, if deſigned to continue the plants to ſingle bunches, the runners or ſtrings may be moſtly cut away, according as they are produced, except what may be occaſionally wanted for young plants, and, being thus cleared, the main bearers will grow ſtronger, and ripen the fruit in beſt perfection; but in the Alpine ſtrawberry, before obſerved, always have the beſt runners continued for bearing the ſame ſeaſon in ſucceſſion till autumn.

In May and June, when the ſtrawberry plants are flowering and ſetting their fruit, if dry hot weather, give frequent good waterings, to make the fruit ſet plentifully, and ſwell freely in a regular growth to a handſome full ſize; for without this aſſiſtance in dry ſeaſons, the plants would ſet fruit but ſparingly, and the berries would be ſmall and of irregular growth; therefore in the above-mentioned ſeaſon of flowering and fruiting, if the weather proves very dry, give water two or three times a week, plentifully, to reach the roots of the plants; but when the fruit is ripening, generally deſiſt from copious watering, as too much moiſture at that period would prevent the berries from ripening with a full flavour.

Strawberries ripen in June, July, and Auguſt, &c. in which ſeaſon, when beginning to ripen, as the larger ſorts of ſcarlets, hautbois, and Chili, often have the bunches of fruit ſo heavy that they fall to the ground, it may be proper in ſome particular large and fine ſorts, eſpecially if very rainy weather, either to ſupport them from the earth by tying up the leaves and fruit ſtalks together, in an upright poſition, or place ſmall ſticks in the earth and tie only the fruit ſtems thereto; the fruit thus elevated from the damp of the earth will be preſerved from rotting and from being eaten by vermin,

vermin, and will ripen ſooner, and with an improved flavour; or likewiſe in ſome principal ſorts, where the plants ſtand diſtant, flat tiles may be placed on the ground around each plant, for the fruit, not ſupported as above, to reſt upon, which will preſerve them dry from the moiſture of the ground, and promote their ripening in the beſt perfection.

However, as the above practice would, in moſt gardens, be inconvenient to perform in the general plantations, or large crops, it is therefore only propoſed for ſome of the capital or moſt deſirable ſorts, when required to obtain them in the moſt improved ſtate; in the others, let the fruit take its chance in the natural way, and it will ripen abundantly well for the general ſupply; though in very wet ſeaſons, many near the ground are liable to rot, and ripen with an inferior flavour; but this is unavoidable, and there are generally plenty that ripen in good perfection for principal uſe.

In gathering ripe ſtrawberries, generally pluck them moſtly in their cup or calyx, with part of the pedicle or footſtalk to each fruit, pinching them off carefully, not to bruiſe the berries; but the wood ſtrawberry in particular is moſt commonly gathered without any part of the ſtalk, detached naked out of its calyx or cup, ready to put into cream; or for the table, they may alſo be occaſionally gathered with part of the footſtalks as the others, handling the whole very gently, not to bruiſe them; and generally gather them in ſmall baſkets, not great quantities together in large ones, as they would bruiſe and ſpoil one another.

When the general crops have done bearing for the ſeaſon, in autumn, it is eligible to cut down the rank old leaves, that they may ſhoot up new ones before winter in a low cloſe growth; and at the ſame time, in order to continue the mother plants in diſtinct bunches, let all the intervening young ones, and runners between the main ſtools, not wanted for planting, be cut up clean to the bottom with a knife or hoe, cleared away, and the beds well cleared from all weeds; then, or in October or following ſpring, in February, March, or beginning of April, dig the ground carefully

fully between the plants a moderate depth, if room to admit a ſpade, otherwiſe looſen the ſurface with a hoe two or three inches deep or more; or alſo occaſionally in the ſpring dig the alleys between the beds, and ſpread ſome of the earth between and about the plants; and if the alleys are much ſunk, augment them with rotten dung, and digged in a ſpade deep.

But every ſpring, if omitted in autumn, always dreſs the beds as above, cutting away all remaining runners, &c. not required for planting, then either dig or hoe the beds, or dig the alleys, and ſpread ſome of the earth over the beds between the plants, which will prove very beneficial culture.

To beds of ſeveral years ſtanding, if light poor ground, a little manuring with thoroughly rotted dung would prove beneficial, being applied in the autumn or ſpring, after clearing the beds from the ſtrings and weeds, ſpreading the dung thereon between the plants, if they ſtand diſtant, and point it in with a ſpade, or if the plants have been permitted to run all over the beds, have the dung thoroughly rotten, broken ſmall, and mixed with ſome good freſh earth, and apply it in October or November thinly over the ſurface, breaking it as fine as poſſible with the ſpade; it will pulverize by the weather, and the rains will waſh its nutritious virtues into the earth; or in want of good rotten dung for this purpoſe, dig the alleys between the beds, &c. and ſpread ſome of the earth finely broken over the ſurface about an inch thick, it will refreſhen the ſoil of the beds conſiderably to the benefit of the plants.

To raiſe Strawberries early in a Hot-houſe, Forcing-houſe, Hot-walls, and Hot-beds.

Strawberries may be forwarded to early fruiting in ſpring, by forcing in hot-houſes, fruit forcing houſes, hot walls, and hot-beds, having pots of bearing plants placed therein about January or February, &c. they will produce ripe fruit in March, April, and May, or till the natural-ground plants come into bearing in June, and in which they will bear plentifully, and ripen the fruit in full perfection, eſpecially in a common

mon hot-houſe and fruit forcing-houſes, as vineries, peach-houſes, &c. with greater ſucceſs and leſs trouble of culture than in common dung hot-beds under frames and glaſſes; though in tanner's bark hot-beds, or of dung below and bark above, made in a pit or caſe, to confine the bark in the proper form, and defended at top with a frame and lights, the pots of ſtrawberries plunged in the bark, plentiful crops of early fruit may be obtained generally with leſs trouble and greater ſucceſs than in hot-beds of dung aforeſaid, as the bark ſupports a more kindly, moderate, regular growing heat, of long duration; and that in fruit-houſes or hot-walls, &c. furniſhed with a bark-bed, and pots of ſtrawberries plunged therein, and placed upon ſhelves, in January, February, and March, they will produce certain good crops of early fruit.

The beſt ſorts of ſtrawberries for forcing are the ſcarlets, for the general production of plentiful crops of fruit; and may alſo have ſome of the Alpine ſorts, which will likewiſe ſucceed by forcing, and bear in tolerable plenty; the hautbois and Chili kinds may alſo be ſometimes introduced for the ſame occaſion, though not admitted ſo early as the others, as they never ſucceed ſo well.

For this purpoſe of forcing, generally have requiſite ſupplies of fruiting plants, ready in pots, advanced to two years growth, of a proper age for bearing, eligible to introduce in the ſtove, forcing-houſe, or hot-beds, &c. intended, at the proper ſeaſon, in winter and ſpring, for bearing the ſame year; and that to prepare for which, either pot ſome young runner plants from the natural ground beds in ſpring, ſummer, or autumn, in middling pots (24s) filled with rich loamy compoſt, or other good rich earth, one plant in each, to remain to have two years growth and attain a bearing ſtate, placing them in a ſhady border all ſummer, well watered in dry weather, kept conſtantly cleared from all runners and ſtrings, and placed in a ſunny ſheltered ſituation in winter; or have two or three years old plants already arrived to a full bearing ſtate in the natural beds where formerly planted, taking them up in autumn, about September, October, November, &c. with full balls

of

of earth about the roots, and potted as above; and either of which, being of the afore-mentioned mature growth and age for bearing, they may be introduced as required in any of the forcing places at different times from January or February till March or April, to bear in regular ſucceſſion.

Previous to forcing, let the pots of plants, in the beginning of winter, be placed in a warm ſheltered border in the ſun, or under garden frames, to be defended with the glaſſes, &c. if ſevere froſts, ſnow, or other bad weather occur, before the ſeaſon for introducing them into the forcing apartments, that they may be in a good condition for that occaſion.

In a common pine-apple ſtove or hot-houſe, ſome pots of plants may be introduced in December; but a larger ſupply in January and beginning or any time of February, placing ſome near or towards the front and end glaſſes, or others near thoſe at top upon hanging ſhelves over the back, front, and end walks, &c. not to ſhade or detriment the pines or other exotics below; and ſome pots may be plunged in the front of the bark-bed, if room, to forward them to earlier fruiting; and thus a portion may be admitted at different times at two or three weeks interval, from December, January, or February, till the middle or end of April; and to all of which, the principal culture is, to give frequent waterings; but when they are in bloſſom, apply the water only to the earth in the pots, till they have ſet the principal crop of fruit, as watering over the flowers may clog or deſtroy the properties of the fecundating male powder; likewiſe obſerve, according as the plants puſh forth runners, to pinch them off cloſe, the plants will thus produce fruit in good perfection in regular ſucceſſion from February or March till May or June.

Or in any fruit-forcing houſe, hot walls, or forcing frames, &c. in cultivation with fire heat or bark beds, begin to introduce ſome pots of bearing plants the latter end of January or beginning or middle of February, placed near the glaſſes, or upon ſhelves above or below; and if theſe apartments are furniſhed with an internal bark-bed, plunge alſo a principal ſupply of plants therein,

therein, which will forward them to earlier fruiting in greater abundance and perfection; obſerving nearly the ſame culture as for thoſe in the pine-houſe, as above; introducing more plants at proper intervals as there directed; and they will produce plenty of ripe fruit from March or April till May or June, when they will be ſucceeded by the production of the natural-ground plants in the laſt mentioned month.

And in hot-beds of dung or tanners bark, under frames and glaſſes, ſtrawberries may alſo be fruited early; either making a ſubſtantial dung hot-bed, a yard high, for one or more three-light frames, in January, February, March, and earth it at top within the frame five or ſix inches thick, or lay old or new tanners bark that depth, in which to plunge the plants: or a hot-bed wholly of tanners bark, where convenient, made in a pit or caſe, will generally prove more ſucceſsful by its kindly, ſteady, and more durable heat; the pit or caſe for which being formed either of poſt and planking, or brick-work, three feet and a half depth, but ſunk only half way in the ground, and fitted with frames and glaſſes at top: but a brick-work bark-pit, four feet depth in front by five or ſix behind, framed at top for glaſſes, and the back part furniſhed with a flue above of two returns, or a flue alſo continued all round in the upper part, in which to make occaſional moderate fires of cold nights and ſevere weather, or when the heat of the bark is weak, it would prove of ſuperior advantage; and in either of which pits to have a bark-bed therein a yard depth of bark, in which to plunge the pots of ſtrawberries at the proper ſeaſon.

Then having a ſupply of two years old plants, of a proper age for full bearing, either in pots as before directed, or ſome may be digged up with balls of earth immediately from beds in the natural ground, and either potted, or placed in the hot-bed without pots; and in either caſe, plunge the pots, or plants with the balls of earth to their roots, into the earth or bark of the hot-bed; put on the glaſſes; admit air every day in moderate weather, by tilting the lights an inch or two behind; cover the glaſſes every night with mats or litter, and

and uncovered in the morning; give occaſional light waterings when the earth appears dry; and in the dung hot-beds ſupport a regular heat, when declined, by application of linings of hot dung to the ſides; the bark hot-beds will generally maintain a proper heat without that aſſiſtance; and thus the plants will produce tolerable crops of early ſtrawberries, ripening in March or April; and, by planting at different times, at three or four weeks interval, will furniſh a ſucceſſional production of ripe fruit till May or June, until the natural-ground plants arrive to bearing.

SMALL SALLAD HERBS,

Conſiſting of CRESSES, RADISH, MUSTARD, RAPE; and ſometimes TURNEP and CABBAGE LETTUCE.

THESE plants for ſmall ſallad-herbs are always uſed while quite young, of a few days or a week or two old, principally while they remain in the firſt or ſeed-leaves, which, for this purpoſe of ſmall ſallading, are the parts uſed, being of a warm agreeable flavour, eſpecially the firſt five ſorts; palatable and wholeſome to eat for winter and ſpring ſallads, both alone occaſionally, and to incorporate with, and give a warm reliſh to, the larger mild ſallad plants, as lettuce, endive, celery, &c. and may be obtained at any ſeaſon of the year required, both by ſowing in the open ground, in ſpring, ſummer, &c. till November; then, and all winter, under frames and lights, or hand-glaſſes, and in froſty weather, in hot-beds; are all annual plants of quick growth and ſhort duration, in an eligible young ſtate for the above occaſion; raiſed from ſeed ſowed once a week, fortnight, or three weeks, to obtain a conſtant ſucceſſional ſupply of young: the ſeed ſowed principally in flat ſhallow drills, or occaſionally broad-caſt on the ſurface, and earth ſifted over; always ſowed very thick for ſallading; the plants to remain where ſowed, and when from one to two or three inches high,

in

in the young ſtalks and leaves, are of proper growth to cut for uſe; not continuing in good perfection for ſallads above a fortnight, or at leaſt after they advance conſiderably in the rough or proper leaves, as they will then be of a too ſtrong hot taſte; and in all of which the plants of the different ſowings, if any remain, run for ſeed, ripen it in ſummer and autumn, and then wholly decay.

As before noticed, theſe ſmall ſallad herbs may be obtained at all ſeaſons of the year; in ſpring, ſummer, and autumn, by ſowing in the open ground; and in winter, under glaſſes and in hot-beds: but the ſpring is the general ſeaſon for ſowing the main ſupplies, principally in February, March, April, till May, as being the chief ſeaſon of their principal demand, and in which may commence the early ſowings in a moderate hot-bed in January or February till March, to obtain forward crops in theſe months, as by this aſſiſtance the plants are obtained in a fortnight to three weeks after ſowing; but, in mild weather, the early natural-ground ſowing may be commenced in February and March in warm borders; and after the middle or latter end of March, they may be ſowed in any open ground, repeating the ſowings once a fortnight till May, then every week or ten or twelve days all ſummer, till October, &c. if required young in conſtant ſucceſſion; and from October or November during the winter, once a fortnight or three weeks.

For ſpring ſallading, if required as early as poſſible, begin ſowing in a hot-bed in January, or beginning, or any time in February; when make a moderate hot-bed of dung, half a yard, or two feet high, for one, two, or more of the ſhalloweſt three-light frames, if large ſupplies are wanted; or, if only a ſmall or moderate crop is neceſſary, a hot-bed for a one or two-light frame may probably be ſufficient, or, if in want of frames, may uſe hand-glaſſes; or the bed arched and covered with mats of nights and bad weather: the bed made, and the frame on, earth the top five or ſix inches with light rich fine mold, then draw flat very ſhallow drills, two, three, or four inches wide, with the broad way

of the hoe, and three or four inches aſunder: ſow the ſeed, each ſort ſeparate, very thick, ſo as almoſt to cover the ground therewith, and earth them over very ſlightly, juſt to cover the ſeed: or inſtead of ſowing in drills, make the ſurface even, ſmoothing it lightly, with the back of a ſpade; ſow the ſeed all over the ſurface very thick as before obſerved, then ſift fine earth over it evenly and thinly as above, and directly put on the glaſſes cloſe.

The ſeed will thus quickly grow, and the plants come up in two or three days, when, as they will riſe very thick, and a copious ſteam from the heat of the bed, tilt or ſlide down the glaſſes, one, two, or three inches, both to admit a freſh air to prevent the plants running up too weak, and to give vent to the rank ſteam, which, if confined, would, in the thick growth of the plants, fog and rot them off in a ſhort time: cover the glaſſes of nights with mats or ſtraw-litter; and if the earth dries, and mild open weather, give light waterings, with the head or noſe of the watering-pot on, in the forenoon of a mild day; and when the ſallading is advanced a few days or a week in growth, may begin gathering, cutting them clean to the bottom, each ſort ſeparate.

Thus continue ſowing for ſucceſſion, once a week or fortnight till March, or during the cold weather, either in a freſh hot-bed, or occaſionally in the ſame, eſpecially where the beds are of conſiderable extent, to have ſome part gathered a week or more before the other, to admit of ſowing the vacant beds in due time to come in for a regular ſucceſſion, lining the ſides with hot dung to revive the decayed heat: and, according as the reſt is gathered, continue ſowing in the ſame manner.

Or in want of hot-beds for the above early ſallading, prepare a natural bed of rich light earth, in a warm ſunny expoſure, for one, two, or more of the ſhalloweſt garden frames, raiſing the bed ſix inches or more behind; rake and ſmooth the ſurface as before adviſed, ſow the ſeed thick, and ſift earth over it thinly, juſt to cover the ſeed ſufficiently, and then ſet on the frames and glaſſes; or obſerving, if your frames are rather deep,

deep, it would be adviſable to ſink them behind, or all round, to have the ſurface of the bed within ſix or eight to ten or twelve inches of the glaſſes, to have the greater advantage of the ſun: put on the glaſſes, and cover them every night.

Or likewiſe, in default of garden frames, either for the hot-beds or thoſe of natural earth, hand-glaſſes, if any, may be uſed; or, in want of theſe, the bed may be arched or cradled over with hoops or rods, to cover with mats in cold weather.

However for natural-ground ſowing, for main crops of ſallading, the ſowings may be commenced in February if open mild weather, or beginning or any time in March, firſt in warm borders, raking the earth fine, and either draw flat ſhallow drills, three or four inches wide or more, with the broad way of the hoe, four, five, or ſix inches diſtance, ſow the ſeed thick the whole width of the drills, and cover it over evenly and thin with the fineſt earth; otherwiſe, the ground may be divided into four feet wide beds, rake the ſurface even and fine, and ſmooth it off lightly with a ſpade; ſow the ſeed thickly all over the ſurface, and ſift earth over very thinly as formerly obſerved; for if covered too thick, it would be apt to cake, and the plants coming up very thick and cloſe together they would not be able to make their way freely through the cruſted earth; in which caſe of the earth caking, it is adviſable to break the cruſted ſurface by whiſking it lightly with the hand or end of a light birch broom, or light rake, giving neceſſary waterings in dry warm weather; and repeat the ſowings once a fortnight, or as may be required in order to continue a regular ſucceſſion of quite young plants.

Likewiſe in the above early ſowings in the open ground, if cold nights or ſharp froſty weather, it will be of great advantage to cover the ſurface over with large mats, both before and after the plants come up: or ſometimes where night covering is omitted, and the ſallad attacked with a white or hoar froſty rime, it is adviſable in the morning to water the plants to waſh off the rimy particles before the ſun melts it on the leaves, which

which would occaſion their changing black, and become uſeleſs.

But in the general ſpring ſowings in March, April, May, they may be performed in any compartments of borders or beds, in open quarters of ground, in the order above mentioned, once a fortnight; and in dry warm weather give occaſional waterings in warm days, both before and after the ſallading is coming up, to aſſiſt the plants in riſing freely and regularly together: alſo afterwards, if a very dry ſeaſon, to prevent their growing too hot.

In the ſummer-ſowings of ſmall-ſallading in hot weather, as the plants will then be of quick growth, ſoon becoming old, the ſowings will be requiſite once a week or ten or twelve days, to have them young in conſtant ſucceſſion; and at this ſeaſon, in June, July, Auguſt, &c. it is adviſable either to ſow in ſhady borders, or if in any common open ſituation full in the ſun, to ſhade the beds with garden mats as ſoon as the ſeed is ſowed, eſpecially in hot ſunny days, or very drying weather, continuing it till the plants come up; and in both caſes give daily waterings, both before and after the plants appear.

But in autumn, after the beginning or middle of September, the hot weather declining, they may be ſowed in any common expoſure, once a fortnight; and in October, cold nights commencing, ſow in a warm ſituation in the full ſun; or in the middle or end of the laſt mentioned month, may begin to ſow under frames or hand glaſſes, if cold weather.

The winter-ſowing of ſmall ſallading commencing the beginning of November, that, if mild weather, ſome may be ſowed in a warm ſouth border, and occaſionally defended in cold nights with hand-glaſſes or mats; but if very cold nights or days prevail, begin to ſow in beds of rich earth under frames or hand-glaſſes, as explained in the early ſpring-ſowings; or in the more advanced ſeaſon of winter, when frofty or very ſharp weather, it will be proper to ſow in hot-beds once a fortnight or three weeks, making the beds and performing the ſowings agreeable to the ſame directions

as in the early hot-bed culture thereof in the ſpring; obſerving alſo the ſame general management: and by theſe methods, plenty of ſmall ſallad may be obtained throughout the winter-ſeaſon: or, in the winter-culture of ſallading, if ſufficient hot-beds for that purpoſe are not attainable, make ſloping beds of natural earth fronting the ſouth ſun, the back part raiſed ſix inches to a foot, and defended with ſome ſhalloweſt frames, or deep frames ſunk, to have the ſurface of the bed within ſix or eight inches of the glaſſes, ſowing the ſeed in drills, or on the ſurface, in the manner formerly directed; having the outſide of the frame thickly lined round to the top with dry long litter, the glaſſes kept on conſtantly, and covered every night with ſtraw-litter or mats: and, in ſevere froſts, augment the covering conſiderably with the above litter, from ſix inches to a foot thick or more, ſufficient to exclude the froſt ſo effectually as not to freeze within the frames; continued alſo occaſionally of days when extremely rigorous weather; and thus, in default of hot-beds, may have moderate crops of ſallading all winter.

To raiſe proper ſupplies of ſmall ſallad, plenty of ſeed ſhould be provided, more in proportion than for almoſt any other crops, as the ſeed ſhould always be ſowed very thick; otherwiſe, as the plants are uſed in a ſmall young growth, the production would be trifling in proportion to the ſpace of ground ſowed therewith, both in the natural beds and hot-beds.

In gathering ſmall-ſallad for uſe, it, as before obſerved, may be cut when from one to two or three inches high, in its quite young growth, generally cutting it clean to the bottom, as it ſeldom ſucceeds well to ſhoot out again in any tolerable ſupply; though creſſes in particular, if cut off a little above the ground, will ſhoot forth again in ſucceſſional young leaves for ſeveral gatherings; but theſe will be of a ſtronger hot taſte than the young plants immediately from the ſeed: however, where omitted ſowing in proper time to obtain a regular ſucceſſion of young ſeedling plants, the preſent, in gathering them for uſe, may be cut a little above the ſurface as before ſuggeſted, to furniſh a ſucceſſional

ceſſional production from the bottom, as may be occaſionally required, till the ſupply of young from ſeed arrives to a proper growth for gathering; in which the plants are commonly uſed in their young ſtate in the ſeed-leaves, particularly the muſtard, radiſh, rape; for when much advanced in the ſecond or rough leaves, they eat coarſe, and often rankly hot, eſpecially in ſummer; but while quite young, they, both in leaves and ſtalk, are ſucculent, tender, and of a mild warm flavour.

Theſe plants, for winter and ſpring ſallads, are accounted exceedingly wholeſome, and for which amazing quantities are raiſed in the market-gardens round London, for the ſupply of Covent-Garden, Spitalfields, Newgate, and Fleet markets, where ſome gardeners ſupply to the amount of ſeveral hundred pounds worth in a ſeaſon; eſpecially the early ſupplies in winter or ſpring till April or May, and for which they provide vaſt quantities of ſeed, by buſhels or ſacks at a time.

Thus far concludes the eſſential culture of the general ſmall ſallad herbs; ſome farther particulars, relative to the plants ſeparately, are explained under their reſpective articles: ſee *Creſſes*, *Muſtard*, *Radiſh*, &c.

GENERAL SALLAD HERBS,

Or the different Sorts of PLANTS, HERBS, ROOTS, proper to uſe for SALLADS.

UNDER this head is given a liſt of the principal plants generally or occaſionally uſed for ſallads, collected under one point of view; ſerving to remind at ſight what articles are neceſſary to ſow or plant for that purpoſe; referring to their reſpective heads for their particular merits therein, other different uſes, and general culture; conſiſting of the following:

Lettuce.—Principal ſallad plants in ſpring, ſummer, autumn, or occaſionally in winter.

Celery.—Excellent for autumn, winter, and ſpring ſallads.

Endive.—A fine ſallad-plant, for autumn, winter, and part of ſpring.

Celeriac, or turnep-rooted celery.—Sometimes uſed, the root, to ſlice in autumn and winter ſallads.

Finochio.—Alſo ſometimes eat in ſallads, or alone, as ſuch.

Young radiſhes.—The roots in ſpring, ſummer, and autumn, occaſionally admitted in ſallads, to eat whole or ſliced.

Creſſes,
Muſtard,
Radiſh,
Rape,
Lap-Lettuce,
Turnep.
} Small ſallad herbs, to uſe when quite young, of a few days to a week or two old.

Red beet-root.—Uſed in autumn, winter, and ſpring, to ſlice in ſallads, both raw, boiled, and pickled.

Purſlane.—Proper to introduce in ſpring and ſummer ſallads; eſteemed for its ſucculent fleſhy leaves.

Spearmint.—The young green tops in ſpring and ſummer, and in winter by hot beds, is ſometimes admitted in ſallads; or occaſionally as a ſpring ſallad alone, with vinegar, oil, ſugar, &c.

Young green onions.—Are often required in ſpring ſallads, part of ſummer, end of autumn, and in winter.

Corn-ſallad, or Lamb's lettuce.—In winter and ſpring ſallads.

Sometimes the following are alſo occaſionally uſed in ſallads:

Chervil.—Sometimes in winter and ſpring.

Coriander.—In the ſame ſeaſons, and in ſummer.

Tarragon.—In ſpring, ſummer; and in winter by hot beds.

Red cabbage.—Is ſometimes uſed alone for a winter and ſpring ſallad; ſhred ſmall, and eaten raw, with vinegar, oil, pepper, &c.

Dutch turneps.—When quite young, in April, May, &c. are ſometimes ſliced thin in ſallads.

White

White Italian turnep-radiſh.—Is alſo ſometimes uſed both whole and ſliced thin in ſpring and autumn ſallads.

Horſe-radiſh.—Scraped fine, is ſometimes admitted, a ſmall portion, in winter and ſpring ſallads, for its warm quality.

Baſil.—Young tops, in ſpring and ſummer, a ſmall quantity among other herbs.

Borage.—Young leaves and flowers in ſummer, autumn, winter, &c.

Naſturtium.—The young leaves and flowers, in ſummer and autumn.

Burnet.—In winter and ſpring, or the young leaves any time of the year.

Sorrel.—Is ſometimes admitted in the compoſition of ſpring and ſummer ſallads, the young leaves, for their ſharp acid taſte.

Black Spaniſh turnep-radiſh —Is ſometimes ſliced in autumn, winter, and early ſpring ſallads.

Water-creſſes.—Is a moſt wholeſome ſallad, both to eat alone, and mixed with other ſallad herbs, in ſpring, autumn, and winter; but this is but ſeldom cultivated in gardens, as it requires to grow in water.

Dandelion.—When blanched white, tender, and mild, is ſometimes uſed in ſpring ſallads; but is ſeldom cultivated in gardens: is plentiful in paſtures.

Of the above different ſorts, the moſt generally uſed for common ſallads are lettuce, celery, endive, and the common ſmall ſallad herbs; with young ſpring onions, and radiſhes, &c. and ſometimes principally lettuce and ſmall-ſallading; and in ſummer, well-cabbaged Cos and other lettuces are ſuper-excellent even to uſe by themſelves for ſallads: alſo ſometimes celery, or that and endive together are occaſionally uſed, without any other, for winter and ſpring ſallads; though the ſmall-ſallad herbs, from their warm nature, improve the taſte, flavour, and quality of moſt ſallads, at all ſeaſons of the year, and are often uſed as a principal ſallad by themſelves in winter and ſpring. Corn-ſallad is alſo often

admitted as a principal winter and early ſpring ſallad-herb, along with creſſes, muſtard, &c. when common lettuces are ſcarce in theſe ſeaſons: and purſlane in the ſpring and ſummer is, by many, eſteemed for its ſuculent thick fleſhy leaves, of an agreeable reliſh, proper to mix with other herbs. As to all the other ſorts, they are occaſionally uſed to ſuit different palates, as they may accordingly be required. And as all the ſpecies of common ſallad herbs, and other plants occaſionally uſed for ſallading, as mentioned in the above liſt, are deſcribed fully, with their reſpective merits, principal and different uſes, and general culture, each ſeparately under their proper heads, I ſhall refer thereto for the particulars of each ſort, as moſt of which are valuable or uſeful on ſeveral other occaſions; but being thus collected, ſhews at once what are commonly and occaſionally uſed for ſallads.

POT HERBS,

Or HERBS, ROOTS, FRUITS, &c. proper to reliſh and give Conſiſtence to SOUPS, BROTHS, and for other CULINARY DISHES.

UNDER this head are compriſed ſeveral ſmall herbs, roots, and fruits, both of the aromatic or high-flavoured kinds, and others, commonly denominated pot-herbs, from their uſes principally to give flavour and conſiſtence to ſoups, broths, and other cookery diſhes; and being here collected together, ſhews at once what are neceſſary to have in the kitchen-garden for theſe occaſions; referring to the reſpective articles under their different heads for the particulars and culture of each ſort, conſiſting of the following ſpecies and varieties:

Thyme	Chervil
Savory	Tanſey
Marjoram	Fennel
Mint	Dill
Hyſſop	Marigold
Sage	Coriander
Tarragon	Sorrel

Penny-

Pennyroyal	Parſley
Burnet	Lettuce
Green Beet	Leeks
White Beet	Onions
Spinach	Young Carrots
Borage	Capſicum Pods
Baſil	Love Apples
Purſlane	Cucumbers
Young Turneps	Rampion
Celery	Shallots
Endive	Garlick.
Clary	Rocambole
French Turneps	Cives.

All the above are occaſionally uſed as pot-herbs, &c. to give reliſh and conſiſtence to ſoups, broths, and on various other oleraceous occaſions; though of which the moſt generally uſed as pot herbs conſiſt of thyme, ſavory, marjoram, ſage, tarragon, parſley, leeks, celery, onions, chervil, mint, marigold, ſennel, dill, pennyroyal, green beet, white beet, ſorrel; all of which are hardy plants, of the perennial, biennial, and annual tribes, both of under-ſhrubby and herbaceous kinds, as explained under their reſpective heads. The others conſiſt alſo of the ſame kinds, but ſome hardy, and others tender, requiring hot-beds in their culture; all which is fully ſhewn under the different articles, ſeparately, in their proper places; and being collected as above, under one point of view, it reminds, and readily ſhews at once, what plants are requiſite to cultivate for general and occaſional uſe, as above, as may be required; and in their ſeparate heads are explained their particular and general uſes, both in this, and many of them for other uſeful purpoſes, together with their general culture.

Of the common pot-herbs ſhould always raiſe a proper ſupply in an allotted compartment for an herbary; particularly for the abiding or perennial kinds, as thyme, ſavory, ſage, marjoram, hyſſop, mint, tarragon, tanſey, penny-royal, fennel, burnet, ſorrel; and in which may alſo be added chervil, pot-marigold, dill; all planted and ſowed in four feet wide beds, borders, &c. and as directed under their ſeveral articles; and in which

the perennial ſorts, being of ſeveral years continuance, ſhould have the beds kept clean from weeds all ſummer by hoeing or hand-weeding; and in autumn, about September, October, or November, cut down all decayed ſtalks of the plants, clear off all weeds, then lightly dig between with a trowel or ſmall ſpade, where room; or in cloſe running plants, as mint, pennyroyal, &c. dig the alleys, and ſpread ſome earth thinly over the ſurface of the beds: and in ſpring, hoe off any weeds, and lightly looſen the ſurface with the hoe, and rake it even. See each article.

AROMATIC PLANTS.

UNDER this deſcription is arranged a liſt of ſuch plants as are of a high fragrance and taſte, conſiſting both of under-ſhrubby, ſhrubby, and herbaceous kinds, uſeful and neceſſary to cultivate in a kitchen-garden; ſome as pot or ſweet herbs, others for medical occaſions, and conſiſt of the following ſorts:

Sage	Balm
Savory	Spearmint
Thyme	Peppermint
Marjoram	Pot-marigold
Hyſſop	Pennyroyal
Tarragon	Chamomile
Tanſey	Baſil
Fennel	Lavender
Dill	Rue
Chervil	Roſemary.
Angelica	

All theſe, poſſeſſing an aromatic property of a peculiar high flavour, are uſed many of them to give a ſimilar reliſh, and to improve the quality of many culinary diſhes, ſome to uſe occaſionally in a medical way, in family occaſions, and ſome for diſtilling; all very neceſſary to have in a kitchen-garden in ſmall ſupplies, as directed for each ſort under their reſpective articles; and, being

being collected together under one head, as above, it will be readily ſeen what ſorts are proper to cultivate as aromatics; ſeeing the different ſorts under the ſeparate heads for their general deſcriptions, proper uſes, and methods of culture.

DISTILLING HERBS,

CONSISTING of ſeveral aromatic plants, employed in ſummer, when at full growth, for diſtilling for cordial and medical waters, being principally the following:

Peppermint	Lavender flowers
Spearmint	Balm
Pennyroyal	Hyſſop.

Theſe plants being uſeful, ſome for other purpoſes beſides diſtilling, they, for the latter occaſion, are in proper perfection juſt when they are beginning to flower, in June, July, &c. and ſhould then be gathered in a dry day, and carried under cover to remain freſh for that uſe; and for which ſhould be uſed while they are freſh gathered: ſee each ſort under its proper head, for the deſcription, particular and general uſes, and methods of culture.

DRYING HERBS,

To keep for Winter Uſe,

COMPRISE ſeveral of the aromatic tribe in particular, which are neceſſary to gather in ſummer when at full growth, to dry to keep for winter ſervice, as they will retain their peculiar virtues in their dried ſtate all that ſeaſon; conſiſting of the following:

Spearmint	Sage
Balm	Thyme
Pennyroyal	Tarragon
Hyſſop	Lavender flowers
Savory	Chamomile flowers
Marjoram	Marigold flowers.

Of theſe plants, it is proper to gather a quantity every ſummer to dry for winter; ſome neceſſary in caſe of a ſcarcity of thoſe which are of the abiding kind, as hyſſop, ſage, ſavory, winter marjoram, thyme; and of the others, as they do not continue in growth in winter, it is always neceſſary to gather a proper ſupply for that purpoſe; and in all of which, the eligible ſeaſon for gathering them to dry is juſt when they are beginning to flower, being then in the fulleſt perfection of growth to keep well and retain their properties; cutting them in dry weather, the ſtems and flower ſpikes, &c. together, as directed under their reſpective articles; ſpread them in a dry place out of the reach of the full ſun, where they may dry gently; as, if fully expoſed in the hot ſun to dry, it would exhauſt their peculiar properties, which otherwiſe they will retain many months. See each ſort under its proper head.

PICKLING ARTICLES

Comprehend a liſt of ſuch plants, pods, fruits, &c. as are commonly uſed for pickling to preſerve for winter occaſions, &c. conſiſting principally of the following kinds:

Red cabbage.
Kidney-bean pods.
Capſicum-pods.
Green walnuts.
Young cucumbers.
Naſturtium berries.
Red beet-root.
Potatoe apples.
Berberries; and for candying.
Radiſh-ſeed pods.
Love-apples.
Small dried onions.
Tree onions.
Rhubarb, young green ſtalks of the leaves and ſhoots.
Angelica, for candying.

Alſo, ſometimes,

Artichoke bottoms.
Aſparagus.
Cauliflowers.
Young carrots.

IN the above picklers, the red cabbage and red beet-root are proper for this when at full growth, in autumn, winter, and ſpring; the kidney bean, capſicum, walnuts, cucumbers, naſturtium berries, radiſh pods, when

when the pods and fruit are young and green, in ſummer and autumn; the love-apples, both when green and ripe, and the onions, quite ſmall bulbs, when done growth and dried in autumn; berberries when ripe; the rhubarb, early part of ſummer; and the artichoke bottoms, aſparagus, cauliflowers, carrots, generally in their young ſtate of perfection, in ſummer and autumn; and that, as ſeveral of the above ſorts are uſeful in other occaſions, the whole is explained, together with their culture, each ſort under its ſeparate head; eſpecially the herbaceous plants; the tree pickling fruits do not come fully under our plan, in regard to the general culture of the trees; though ſome general hints are given of the proper ſorts and order of planting in the kitchen garden.

SWEET HERBS.

THESE are of the aromatic pot-herb kinds, of a peculiar ſweet ſavour, uſed for ſoups, broths, and ſome other culinary occaſions, to give them a high flavour; and in families the cooks often require them of the gardeners by the appellation of ſweet herbs; and they conſiſt principally of the under-mentioned ſorts:

Sweet marjoram.	Savory.
Pot marjoram.	Thyme.

And, ſometimes,

Dill.	Chervil.
Fennel.	Tarragon.
Pennyroyal.	Young mint.

But the firſt four ſorts are moſt commonly thoſe included under the denomination of ſweet herbs. See the different ſorts under their ſeveral heads.

SOUP HERBS.

THESE in families are often demanded of the gardener ſimply by the name of ſoup herbs, and conſiſt of ſeveral ſorts, principally before explained under the article pot herbs, ſuch as

Marjoram.	Leeks.
Savory.	Chervil.
Thyme.	Tarragon.
Celery.	Green beet.
Parſley.	White beet.

But as ſeveral other herbs, &c. are occaſionally uſed for ſoups, all the different ſorts are mentioned under the article pot herbs, as ſimilar or applicable for the ſame purpoſe, as they may be occaſionally demanded.

GENERAL OBSERVATIONS *and* DIRECTIONS, *both relative to the foregoing and numerous other concurring Particulars.*

HAVING concluded the general directions for raiſing the various eſculent plants of the kitchen garden, there are many other material particulars neceſſary to be obſerved relative to that diſtrict of gardening, which could not with propriety be introduced in the foregoing part of the work, and which I now propoſe explaining under a diſtinct head, the various articles ſeparately.

Such as general obſervations reſpecting the proper ſoil and ſituation for a kitchen garden, when intended to make a new one, the proper dimenſions of one for family ſupply, &c. order of laying it out into different diviſions, of quarters, borders, beds, &c. general remarks for preparing a kitchen ground, by digging, dunging, &c. for the reception of the ſeveral crops; practical method of digging and trenching the ground for that purpoſe; proper manures and compoſts; different

ferent methods of ſowing, pricking, planting, and tranſplanting; with all the other eſſential manual operations according to practice; utility of hot-beds in raiſing early and tender plants; proper materials of hot dung, tanners-bark, &c. for making them; methods of making, and proper dimenſions for different crops, their requiſites of frames, glaſſes, earth, &c. and general management; explanation of the different tools, implements, and all proper materials neceſſary in the kitchen garden department, and their principal uſes therein; together with general obſervations on the methods of cropping the ground, and intercropping, to make the moſt advantage of the ſeveral compartments, where neceſſary, in two, three, or more crops advancing in the ſame compartment, one under another, in ſucceſſional order, whereby to have the ground always completely occupied, to produce all poſſible abundance in the different ſeaſons; and to which is added, the management of forcing-houſes, hot-walls, hot-houſes, and culture of the pine-apple.

In the foregoing directions in raiſing the different crops, the ground being ſuppoſed already planned, encloſed and laid out into proper compartments of quarters, borders, beds, for different crops; that as new kitchen gardens will be required at different times in many places, it will be neceſſary to give ſome general obſervations in the moſt eſſential particulars, relative to ſoil, ſituation, dimenſions, incloſing, and laying out into proper diviſions; and practical culture of a kitchen garden in general.

Making and laying a new Kitchen Garden.

Where intended to make a new kitchen garden, it is of the firſt importance to allot a ſufficient portion of the beſt ground in a proper ſituation contiguous to the dwelling-houſe; the ſituation not too low and wet, or ſubject to inundations, nor on a very conſiderable eminence liable to be too dry in ſummer, or greatly expoſed to the cold in winter, &c. may either be in a plane or level ground, or on a moderate declivity, though in ſome ſoils and ſituations, when ſubject to redundant

moiſture

moiſture at particular ſeaſons, a gentle ſlope will be more favourable than a dead level, whereby to diſcharge the water to ſome lower waſte premiſes; and as to expoſition, if it inclines to the ſouth-eaſt, ſouth, or weſterly, is preferable to a northerly aſpect; however, as choice of ſituation cannot always be obtained, any of thoſe expoſures will be eligible, or in a ſituation partaking of all thoſe aſpects will alſo be proper where the ſoil is good: and if it caſually occurs that ſome parts of the ground are low, others more elevated, ſloping, &c. and more moiſt and dry, it may be of advantage in more eligibly ſuiting particular crops at different ſeaſons; and that with regard to ſoil, a moderate loamy ground is very deſirable, or of a ſandy loamy nature, either of which, being a favourable ſoil for moſt crops, and of great advantage where fruit trees for walls, eſpaliers, or ſtandards are intended; or in default of this, any other black, brown, or hazelly earth of a lighter or heavier, pliable, mellow texture, and proper depth of one or two ſpades, or more, will be very eligible for this purpoſe; a ſtrong clayey ground, and that of a very light, hungry, ſandy, or gravelly kind, and all wet ſpewy ſoils are unfavourable; but where ſuch ſoils unavoidably occur, either wholly or in part, they muſt be improved by degrees, ſuch as for the clayey land, with compoſts of a light warm nature, of any dry earth and dung, aſhes, ſand, &c. ſtronger ſubſtances for the ſandy and gravelly, and dry rich ſubſtantial materials to wet ſpewy ground, adding to all of which plenty of dung; and by which aſſiſtances the bad ſoils may be augmented by degrees to a tolerable fertile ſtate; and in the ſoils in general, a competent depth of good working ſtaple muſt be regarded, principally of one full or moderate ſpade deep at leaſt before it reaches gravel, ſand, clay, chalk, &c. but if two or three ſpades, it will be a very conſiderable advantage, both for the growth of moſt plants, and to admit of renewing the ſoil by occaſional trenching up the freſh bottom earth that depth; and where two ſpades deep or more, is favourable for the growth of long eſculent roots, as carrots, parſneps, red beet, &c.

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In dimenſions for a family kitchen garden, it may be from one to two or three acres for a moderate, middling, or large family, or for a more conſiderable ſupply, ſome are of four, five, or ſix acres, and ſome eight or ten; however, for a ſmall family, half an acre to a quarter of one or leſs, may ſometimes be ſufficient, eſpecially as in many places the allotted ſpace is confined to a ſmall extent; but for market kitchen gardens, theſe are often very conſiderable, and many of the field kitchen grounds eight or ten miles round London extend twenty or thirty to forty or fifty acres or more.

The form of a kitchen garden may either be ſquare, oblong, &c. according to fancy, or as the ſituation admits.

The ground ſhould be well fenced round, either with a wall or cloſe paling for a family garden, or any others of moderate extent, to have the opportunity of planting plenty of wall-trees; but for this, a good wall, ſeven or eight to ten feet high, is ſuperior to any paling, and a brick wall beſt of all, for the greater conveniency of nailing and training the wall-trees; or where wall-trees are not intended, the fence may be a ſtrong hedge, or paling, or an outſide ditch and bank, with a quickſet hedge, &c. at top: however, where walls, &c. are intended, and if required to have as large a ſupply of wall-trees as poſſible, and there is proper ſcope of ground, a ſlip withoutſide of the walls, ten to twenty or thirty feet wide, or more, being fenced off with a ditch, bank, and hedge, or open or cloſe paling, admits of planting both ſides of the walls with trees, and the ground thereof ſerves to raiſe many under crops: likewiſe in extenſive kitchen gardens, croſs walls are ſometimes extended along the ground parallel eaſt and weſt, and in an interſecting order, at conſiderable diſtances from one another, to ſerve for having a ſtill more conſiderable ſupply of wall-trees, as well as afford many uſeful, warm, and ſhady borders under them for particular crops at different ſeaſons; and alſo in ſome large gardens, hot-walls for forcing fruit-trees to early bearing are conſtructed in the croſs or other walls of a

ſouth

ſouth aſpect, with flues for fire heat, ranging horizontally along the inſide walls or middle ſpace, and with frame work in front for glaſſes, five or ſix to eight or ten feet wide at bottom, ſloping to the top; and bearing wall-trees planted withinſide, and trained to a trelles-work half a foot from the wall, or glaſſes, ſuch as for forcing early grapes, peaches, nectarines, apricots, plums, cherries, by making fires every night from the beginning of February till May or June, and in which may alſo have early ſtrawberries, kidney-beans, &c.

The ground within the walls or other fences ſhould be laid out in ſome regular order into compartments for the different crops, forming a broad border along next the walls, &c. five or ſix to eight or ten feet wide, to plant wall trees, and to raiſe many early and late crops of kitchen plants, then allot a ſpace for a walk, of from three or four to ſix, eight, or ten feet, either of gravel, road ſcrapings, ſand, or coal aſhes, or occaſionally of graſs; and, if thought neceſſary, a walk extended along the middle, and croſs ways; and next the walks another border, five or ſix feet wide, and which may be planted behind with eſpalier fruit trees, and ſerve to raiſe many ſmall crops; then within this are the main quarters for raiſing the great crops of all ſorts; and which quarters, if conſiderable, may be divided for different crops into ſmaller breaks or compartments of twenty, thirty, to forty or fifty feet wide, and between which may be planted rows of ſtandard fruit-trees, gooſeberries, and currants; and ſome of theſe ſmaller compartments, when digged for ſowing, &c. may be ſubdivided into beds of four feet and a half to five or ſix feet, ſuch as for crops of onions, leeks, carrots, and ſeveral ſmall cloſe crops, hereafter explained.

Planting Fruit-trees in the Kitchen Garden.

When deſigned to plant fruit-trees in the kitchen garden, formed as above, no time ſhould be loſt; for theſe are very profitable both for family ſupply and the markets, and may be had in great variety in all the nurſery grounds, either young of a year or two old from graſting and budding for your own training, or ſuch as are trained to a bearing ſtate, ſo as to furniſh

the

the garden at once with bearing trees, both for walls, eſpaliers, and ſtandards, to be planted either in autumn or beginning of winter, from about the latter end of October or any time in November till Chriſtmas, if open weather, or in the ſpring about February and March, planting the wall-trees at from fifteen to eighteen feet diſtance, as apricots, peaches, nectarines, plums, cherries, grapes, mulberries; and pears, apples, figs, twenty to twenty-five feet aſunder, as they ſpread more conſiderably than the afore-mentioned ſorts; though ſome ſorts of pears and apples that are worked on dwarf ſtocks may be planted only fifteen to eighteen or twenty feet, or if on paradiſe ſtocks, ten to fifteen feet; and if high walls, may plant between the common dwarf wall trees thoſe of half or full ſtandard, with ſtems of from three or four to five or ſix feet, elevating the head of branches that height, to ſpread the upper part of the wall while the others are advancing below; and when theſe are advanced conſiderably upward, cut away the under branches of the others by degrees; and a row of eſpaliers may be planted in the borders which ſurround the main quarters, apples, pears, plums, cherries, apricots, grapes, the diſtance as above, and the branches trained in a ſpreading order till thoſe of the different trees meet, forming a ſort of hedge, in which they will both appear ornamental, ſhelter the interior quarters, and bear abundance of fine fruit; the ſtandard trees to be planted in the large quarters in rows twenty, thirty, to forty or fifty feet aſunder, by the ſame diſtance in the lines; or in garden-grounds where no walls or eſpaliers are planted, it is very profitable to plant ranges of beſt ſtandards in lines the above diſtance; and gooſeberries, currants, raſpberries, between the ſtandard-trees in the ſame rows; alſo ſeparate continued plantations of gooſeberries and currants planted in rows ſix to eight or ten feet aſunder, by ſix feet in the rows, will be very profitable in their abundant produce in green and ripe fruit both for family ſupply, and very beneficial for market; and between the rows may have many ſmall crops, as turneps, ſpinach, coleworts, &c. likewiſe plantations of raſpberries,

planted

planted four feet and a half aſunder, and three feet in the rows.

In planting the wall-trees, allot for the ſouth walls principally, peaches, nectarines, apricots, grapes, figs, beſt ſorts of plums and cherries, ſome choice pears, and ſome golden pippin apples, or other beſt eating kinds; alſo in eaſt and weſt walls, plant ſome of the above ſorts for ripening fruit in ſucceſſion, as peaches, apricots, nectarines, cherries, plums, pears; and on north walls plant ſome morello and other cherries for late fruit, likewiſe ſeveral ſorts of plums and pears; and on walls have likewiſe a ſupply of white and red currants, and ſome beſt gooſeberries and raſpberries; as all wall-trees produce fruit in ſuperior perfection in ſize and flavour; and ſome ſorts will not ripen effectually without that aid, ſuch as peaches, nectarines, figs, grapes, apricots; though of the latter, ſome ſorts will ripen on ſtandards and in eſpaliers.

Digging and trenching the Ground.

The kitchen garden, in its ſeveral compartments, ſhould be prepared for the different crops by a good digging or trenching; generally at firſt, if a new garden, let the whole be regularly trenched, by trenches two feet wide, digging them two ſpades deep, if the depth of good ſoil admits; or if not of ſufficient depth, go only one ſpade and a ſhovelling, not to turn up the bad ſoil; throwing each trench of ground up in rough ridges lengthways, to meliorate and improve by the weather till the time for ſowing and planting; then levelled down with an even ſurface according as wanted, for the different crops of ſeeds and plants, and which, by again breaking and dividing the ſoil, will be an additional improvement; and if in extenſive field kitchen grounds, where ploughing inſtead of digging is principally practiſed, it ſhould be ploughed a proportionable depth according to the order of ploughing, or for long roots, as carrots, parſneps, &c. double ploughed, if a proper depth of good ſtaple: and for ſome principal ſmall crops, permitted to lie rough as above, in winter, &c. then ploughed again and rough harrowed,

rowed, to even the ſurface for ſmall ſeeds, as onions, carrots, turneps, &c.

But in gardens in cultivation, the digging of the ground in the preparation for the ſeeds and plants of the different crops, may be performed occaſionally both by plain or ſingle digging, one ſpade deep for all common crops, either digging right forward or trenchways; and by trench digging, two ſpades deep for particular plants and roots, or one and a ſhovelling; but for all long eſculent roots, as carrots, parſneps, &c. double digging, or trenching two ſpades, where the good ſoil poſſibly admits, will be of much advantage in the growth of theſe kind of plants; and by occaſionally trenching the ground two good ſpades, it more effectually buries all weeds on the ſurface a conſiderable depth in the bottom; and the top ſpit of ſoil exhauſted or impoveriſhed by repeated crops, being thus turned down below, and the freſh bottom earth removed to the top, it in a manner renews the ground in freſh vigour for two or three years or more, when that now turned to the bottom will be recruited to be trenched up again in its turn for ſucceſſional renewal, as required.

All kitchen ground ſhould have a thorough digging or trenching once every year at leaſt; and the principal ſeaſon for general digging, &c. is winter and early part of ſpring, ready for the ſpring ſowing and planting the main crops; and in which, as before obſerved, commonly dig it trenchways in rough ridges, to improve by the weather till wanted for cropping, then may be expeditiouſly levelled down with an even ſurface; or digging will alſo be occaſionally required in ſummer and autumn for immediate ſowing and planting, and ſome compartments will probably require digging two or three times in a year, according as wanted for ſowing or planting with freſh ſucceſſional crops; though ſometimes in interplanting between other crops in rows, before the ground after the principal digging is become hard bound, it will often admit of planting without digging it again at that time for the ſecondary or intervening crop intended; but for all ſowing it is moſtly always

always neceſſary to have the ground freſh digged for that purpoſe.

As digging and trenching is performed different ways occaſionally, as by plain or common digging right forward, one ſpade deep, and by trench-digging in regular trenches, two or three ſpades wide, and one or two deep, I ſhall proceed to mention the particulars of the different methods.

For general digging, have commonly full ſized ſpades, the plate twelve to thirteen or fifteen inches long, to remove the ſoil a proper depth.

Plain or common digging one ſpade deep, right forward, for immediate ſowing or planting with any common crops, is performed by firſt digging out a ſmall trench along one end, one ſpade deep, and the ſame in width, laying or wheeling the earth thereof to fill up at finiſhing; or if there is any low corner in the compartment of ground, begin digging there firſt, digging out a ſmall opening as above, ſo beginning at the open trench, proceed to digging ſpade and ſpade, turning the earth of each ſpit right before you into the open trench, taking but thin or moderate ſpits before the ſpade, to divide the ſoil more effectually, and not entering the ſpade too much ſlanting, but more uprightly, and go the full depth, giving each ſpit of ground a clean turn off the ſpade, top downward, both to turn up the freſh ſoil effectually to the top, and to bury all top weeds, and dung, if any, clean to the bottom, breaking all lumpy parts and large clods, levelling the ſurface as you go on; or where the ground is thickly dunged, the dung may be trimmed into the trench in a ſpade width, or a little more, from time to time, and the ground digged upon it a regular depth in a level order as above; and ſo proceed to the end, filling up the laſt opening with the earth of the firſt, laid ready for that purpoſe, as above adviſed.

Obſerve, in the above digging, that if any part of the ground is lower than the reſt, that part ſhould generally be carried on foremoſt in a gradual gentle ſweep, working the higher ground towards the lower, to raiſe the latter and fall the former to an equal level; obſerving

obſerving the ſame, if any part is high, to keep that behind, digging the lower ground on firſt, a little before the other, to bring the whole to an equal level ſurface; and in finiſhing, if one corner ſhould be higher than the other, work the digging gradually round to finiſh at the higheſt part, to lower it in proportion to the other ground.

Trench digging one ſpade deep, by regular trenches two or three ſpades wide, as a more effectual digging for particular or general crops, is performed by firſt digging out a trench along one end, two feet, or not more than three moderate ſpades wide, and a good ſpade deep, or one ſpade and a ſhovelling, or the crumbs, as it is called, wheeling the earth thereof to fill up the finiſhing trench; and marking out another trench the width of the firſt, pare off all weeds at top, or if dunged, alſo the dung, into the bottom of the open trench; then dig the other lengthways a ſpade deep, or a ſpade and the crumbs at bottom, as juſt above obſerved, turning the earth into the firſt open trench upon the weeds and dung, either level, if for immediate cropping, or each trench laid in a rough ridge longways, to be afterwards levelled down even, for ſowing and planting; and ſo proceed trench and trench to the end of the compartment of ground, filling up the laſt trench with the earth of the firſt opening; and this method of ſingle digging trench-ways, buries weeds and dung a regular proper depth, turns down the worn-out top ſoil, and the freſh bottom earth to the top, and will be a very effectual digging for moſt crops; though not always ſo eligible as double digging or trenching two ſpades deep occaſionally for particular long root eſculents, as carrots, parſneps, &c.

Double trenching, or trenching two ſpades deep, or two and the crumbs in deep good ground, is beneficially neceſſary for occaſional practice, both for the advantage of ſome particular crops, ſuch as principal crops of long root eſculents, as carrots, parſneps, &c. before remarked, as well as occaſionally for crops in general, as being moſt effectual in renewing the top ſoil when much exhauſted, and burying weeds deep not to grow again;

again; and is performed by opening a firſt trench along one end, as above, in the ſingle trenching, two full ſpades, or not more than three moderate ſpades wide, by two ſpades deep, or occaſionally two and the crumbs, or only two ſpades and one ſhovelling, or none at all, as it may ſeem expedient, or the depth of good ſtaple admits, not going below this; wheeling the earth of this firſt opening to fill up the laſt trench; and then marking out the next trench the ſame width, pare off all weeds, &c. at top into the bottom of the firſt opening, dig the ſecond trench along lengthways, turning the ſpits clean into the open one; firſt digging along the top ſpit the full width, and ſhovel up the crumbs, if thought neceſſary; then dig the ſecond ſpade in the ſame order in upon the firſt, laying the ground either level, if for immediate cropping, or otherways, that of each trench thrown in a rough ridge longways, to improve by the weather; it can be expeditiouſly levelled down hereafter as wanted; or if the ground be dunged, trim in the dung upon the firſt ſpit of earth, and dig the next upon the dung, not to bury it the whole depth of the trench, too diſtant from the roots of the plants; and thus in either method, proceed trench and trench, generally laying the ground of each trench in a rough ridge as above, to meliorate and enrich by the weather, and levelled down as wanted for cropping, in ſowing and planting, &c. and having trenched to the end of the piece of ground, fill up the laſt trench with the earth of the firſt, level, or in a ridge, in the above order.

This double trenching to particular compartments, occaſionally by forming a conſiderable depth of looſe ſoil, proves greatly beneficial to all crops, in affording a large ſcope for the extreme roots to deſcend freely, to draw all poſſible nouriſhment; and likewiſe by turning down the upper ſpit of earth when worn out, and the under ſpit of freſh earth to the top, often proves of material advantage in renewing the vegetative quality of the ground, as formerly obſerved: likewiſe is very effectual when ground is foul, over-run with top-weeds; or where greatly abounding in ſcattered ſeeds thereof,

by

by turning the ſurface clean to the bottom of the trench, ſo deep that they cannot grow; and the ſeeds will moſtly periſh before the ground is turned up again.

But in double trenching ground where dunged, and when deſirous not to bury the dung but one ſpade deep within ſpeedy reach of ſlight-rooting plants or others, it may be effected by turning back the dung of each trench; then firſt dig the top ſpit along the full width, turning it into the open trench in a level manner, and then throwing in the dung upon this an equal depth, dig the ſecond ſpit the ſame width, throwing the earth in upon the dung, either levelled or ridged, according to the foregoing obſervations; and ſo proceed trench and trench, burying the dung equally in each the depth as above.

Though for trenching dunged ground, that to have the dung buried only a moderate depth, within more ſpeedy reach of the roots of the plants, as before obſerved, it will be the moſt ready way to dig but one ſpade, or one and the crumbs, ſo trimming in the dung into the bottom of each open trench, digging the earth of the ſucceeding one upon the dung the depth juſt mentioned, whereby it will be equally interred in the earth, all a regular and moderate depth, as may be required.

The trenching for ſome particular plants will be required to be three ſpades deep, but principally only for liquorice; as the main roots, which are the uſeful parts of this plant, run down perpendicularly full that depth. —See *Liquorice.*

In trenching conſiderable large ſpaces of ground by regular trenches, two or three ſpades wide, that to ſave time in opening a firſt trench the whole width of the ground, and of wheeling the earth thereof to the other end to fill up at laſt, the ground may be divided into two or more equal parts, and then, digging out a firſt opening along the end of the firſt diviſion, wheel the earth to the end of that where intended to finiſh; ſo trenching along this firſt ſpace to the end; then at that end of the ſecond diviſion, opening the firſt trench thereof, wheel the earth to fill up the laſt open trench of

the firſt ſpace, continuing the trenching of this ſecond compartment, filling up at laſt with the firſt opening of the next, and ſo of the others; filling up the laſt or finiſhing trench with the earth of the firſt opening of the beginning diviſion.

Or ſometimes in ſingle-handed trenching in ſmall compartments, to ſave time in opening a full trench, marking out the firſt trench two or three ſpades wide, begin at one end, dig out an opening only two or three ſpades lengthways the trench; carry the earth where intended to finiſh; then proceed in the trenching, turning the ſpits of earth before you into the firſt opening, level or ridgeways; continuing in that manner to the end of the trench, then opening the next at the ſame end where the firſt finiſhed, and of the ſame dimenſions, filling up with the earth thereof the laſt opening of the firſt trench, and ſo proceed with trenching as above, and fill up the laſt opening of this with the firſt opening of a third trench; and the ſame of all the reſt, filling up at laſt with the earth of the firſt opening.

Or ſometimes in trenching capacious ſpaces of ground, that to ſave much work in opening firſt and filling up laſt trenches, I have practiſed a method to begin and finiſh with only one opening, but which can hardly be expreſſed by words: I however will endeavour to explain it as well as poſſible. Firſt dividing the large ſpace into two or more equal parts, and opening a firſt trench, wheel the earth to the end propoſed to finiſh at; then trenching along in the common way, till advanced within as much of the end as the piece of ground is wide, nearly ſquare; then begin to prepare for turning the trenches, to trench towards the other undigged ſpace, not however by narrowing the trenches at one end, and wider at the other, but continued of the ſame width, and by ſhortening each trench regularly; each ſucceeding one ſhorter than that preceding by juſt the length of its width: for example, if the trenches are two feet wide, dig the firſt ſhortening trench to within two feet of the end, next to the other ground; dig the next trench within two feet of the undigged part of the firſt; proceeding the ſame with a third within two feet

of

of the end of the ſecond; and in the ſame manner with a fourth, fifth, &c. ſhortening each in the ſame exact regular order; each following trench digged ſhorter by two feet than the preceding one, till advanced to the laſt trench two feet wide and long, terminating at one corner at the end of the ground; ſo that the ſeveral trenches together, thus ſhortened, appear, in a manner, like ſteps of ſtairs; then, mark out the trenches now contrary ways to the others, to range lengthways the ground, and beginning at the ſhorteſt open trench at the corner aforeſaid, dig them trench and trench in that order, each will fill its oppoſite open ſpace, continuing on quite to the other ground till that of the ſhortened trenches is brought equal with the other trenched part of this firſt diviſion, the open trench now ranging lengthways thereof; and then to continue the trenching in the other diviſion of ground, proceed turning the trenches in the ſame ſhortening manner, without filling up or opening another trench at the end, but by now again ſhortening each trench in the order as before, till trenched ſhorter and ſhorter to the farther corner of the ſame end of this ſecond ſpace of undug ground; then again turn the trenches now croſs ways thereof, dig them trench and trench, as before obſerved; continuing thus towards the other end; and if another adjoining ſpace is to be digged, begin again ſhortening in proper time, when the length and width of the undigged ſpace is equal, proceeding then in the ſame ſhortening order in this, and till advanced round in the next diviſion; ſo then trench right along, and in the laſt ſpace, continue the trenching in the common method to the end, and fill up with the earth of the firſt opened trench.

The above is the beſt explanation I can give of this method, which can only be fully comprehended by practice; obſerving always to let the undigged part of the ſhortened trenches be next the ſucceeding plat of ground.

Frequent digging and trenching divides and pulverizes the ſoil to an improved condition for vegetation, keeps the ground looſe for the roots to take their natural courſe freely, and open for the admiſſion of all rain, dew, &c. to enrich it with their nutritious matter,

which is often loſt upon a hard ſoil, in being exhaled by the ſun, but penetrates into a looſe ſoil, and ſheltered from its power; and deep digging occaſionally has alſo its particular advantage, turns up a new ſurface often of an improved nature for moſt plants, and by going moderately deep, a good ſpade, or two ſpades occaſionally, looſening the ſoil that depth, gives liberty for the roots to extend far where they meet no reſiſtance to draw in proper nouriſhment; and the growth above the ſurface correſponds much to that below; ground digged or trenched up in rough ridges in autumn and winter, is not only laid open to the action of the ſun, wind, froſt, and rain, to improve its vegetative quality, but is early ready for general ſpring cropping, in ſeeds and plants; and at which ſeaſon is expeditiouſly levelled down for that purpoſe; and this further ſtirring of the ground in levelling down the ridges, pulverizes and meliorates the earth, and improves its fertility, as well as prepares it in the beſt condition for ſowing and planting, and the ſeeds and plants will grow more proſperouſly in proportion.

In ground deſigned for winter or early ſpring ſowing and planting, it is alſo of advantage to dig it ſome time before in rough ridges, in order that the ſuperfluous moiſture may evaporate; but late in ſpring, or in ſummer and autumn, if the ſeaſon be dry, it is more eligible to ſow or plant immediately after digging, trenching, or laid down in a level order, while the ſurface is freſh ſtirred and moiſt, eſpecially for all kinds of ſowing, more particularly broad-caſt ſowing on the ſurface.

However, at moſt ſeaſons, the ground for ſowing and planting being prepared in a level order for that purpoſe, either by common or plain digging or trenching, or by levelling down ſuch as was digged up in ridges, as before obſerved, will generally, in moſt moderately light and dry ſoils, be in beſt condition while it is freſh ſtirred, or ſoon after digging, &c. though in planting it may be performed in moſt kinds of hardy plants either as ſoon as the ground is digged or levelled down, or in any moderate time after: but ſowing is principally

principally moſt adviſable to follow immediately or ſoon after digging, &c. while the ſurface is freſh moved, and is of a free mouldering ſtate, ſo as it will readily fall under the rake in raking, or at leaſt of a moderate conſiſtence between moiſt and dry, neither hard and cloddy, nor wet to clog to the rake or feet in raking the ſeed into the ground; and generally the ſame degree of moiſture in the freſh-digged ſtate is the moſt eligible to make the ſeeds ſprout freely.

FORK-DIGGING is uſed principally in the culture of one particular crop, namely, aſparagus, in the ſpring-dreſſing the beds, to looſen them a few inches depth, both to looſen and improve the ſoil, and that the advancing buds may have liberty to ſhoot freely; alſo in manuring aſparagus beds in autumn, to fork in the dung three or four inches deep: likewiſe fork-digging is ſometimes of utility in looſening the ground between wide rows of particular plants when the ſurface is hard bound, or ſometimes to looſen borders of wall-trees, eſpaliers, &c. when, after being ſpade-digged, is trodden hard, by performing the neceſſary buſineſs to the trees.

But in aſparagus beds in particular the fork-digging in the ſpring is eſſentially and indiſpenſably neceſſary, having generally for this purpoſe a proper aſparagus-fork, formed with three ſhort flat tines, the ends rounded; or, in want of this, with a light ſhort tined dung-fork; and with either of which dig the beds longways, entering the fork in a ſlanting direction three or four inches deep, turning each ſpit bottom up and top down: and when all is thus forked, rake the beds even, drawing off all hard clods, ſtones, &c. into the alleys; which work of fork-digging theſe beds in the ſpring fertilizes the ſoil, and gives liberty for the young aſparagus buds to advance freely and ſtrong in the enſuing ſpring and ſummer productions. See *aſparagus* and *aſparagus-forks*.

A ſlight fork-digging on other occaſions to looſen any hard-bound ſurface between wide rows of plants in quarters, beds, or borders, or trampled fruit-tree borders, or others before mentioned, may be practiſed occaſionally

caſionally where thought expedient, juſt to turn up and ſtir the top of the ground three or four inches deep, both for the immediate benefit of the plants, and that the rain, dew, air, &c. may have proper acceſs to penetrate into the earth beneficially to the roots, to encourage a free growth below and above.

Likewiſe fork digging is ſometimes practiſed in vacant ground that has been level-digged for ſowing or planting, and has lain ſome time after to want freſh ſtirring, and in which a ſlight fork-digging may be expeditiouſly performed, improveable to the ground and intended crops; alſo ſometimes is practiſed to prick in rotten dung a moderate depth in ground that has been previouſly level-digged, then dunged, and this forked in four or five inches deep, which often proves very beneficial for crops of onions, leeks, lettuce, and other ſlight-rooting plants, that the roots may ſooner reach the dung, to receive all poſſible benefit thereof from the beginning of their growth.

And fork-digging is the proper method of digging up potatoes in gardens, and occaſionally in fields, when not plowed up; and ſometimes for digging up carrots, &c. alſo aſparagus roots for planting.

Manuring or dunging the Ground.

MANURING the kitchen garden with proper augmentations of dung will be neceſſary once every two or three years at leaſt, according as the ground is exhauſted by repeated production of ſeveral crops, as formerly intimated; not all manured at one time, but in different compartments occaſionally, ſome one year and ſome another, as dung can be procured, or as may be required or neceſſary for particular or general principal crops, as onions, leeks, cauliflowers, cabbage, broccoli, aſparagus, artichoke, ſpinach, &c. as mentioned under their reſpective heads; though, where dung is plenty, a manuring every other year for main crops will ſupport the ground in good heart to produce finer crops in proportion.

The dunging or manuring of this ground may be performed at any ſeaſon, when deſigned for immediate

ſowing

ſowing and planting; but for general manuring, the end of autumn, any time in winter or ſpring, according as ground becomes vacant, are the moſt eligible ſeaſons for that work, to augment the particular compartments for the reception of the general crops at the principal ſowing and planting ſeaſons.

For kitchen-garden manure, the rotten dung of old hot-beds when done production, in autumn and winter, is moſt excellent; but in default of this, or a ſufficiency thereof, any other that can be the moſt readily obtained, either rotten, half rotted, or freſh, will be eligible, both of horſe dunghills, rotted cow-dung, hog-dung, or all or any of theſe together, or any kind of general dung heaps of different dungs, earth, aſhes, and other dungy materials in compoſts, laying it from about three or four to five or ſix inches thick, or if more the better, for ſome particular long ſtanding crops, as aſparagus, &c. and generally digged in only one ſpade deep, that the roots of the plants may ſooner reach the dung, to receive all poſſible benefit from its intended advantage.

Though for ſome particular root eſculents, as carrots, parſneps, turneps, &c. if the ground intended for their culture has been dunged the year before, and the dung rotted to earth, will be rather more eligible than if manured the ſame year; as ſometimes freſh dung is apt both to impede the downright growth of the long roots, and to occaſion ſome to canker, particularly carrots, and ſometimes in freſh dunged ground turneps are apt to grow rank, without forming handſome or well-taſted roots.

Preparing and laying out Ground for ſowing and planting.

In PREPARING GROUND for immediate ſowing and planting, either by digging, trenching, or levelling down ſuch as has been formerly digged up in ridges, let all large lumps and clods be well broken, and lay the ſurface even and ſmooth.

For ſowing and planting the different crops, the ground, prepared as above, may either remain for ſowing, &c. in continued larger or ſmaller breaks or diviſions for each reſpective crop; or for ſome particular

crops, the large compartments divided into beds four feet, or four and a half to five or ſix feet wide, with ſpade-wide alleys between the beds, either for ſowing particular or general crops of onions, leeks, or occaſionally carrots, parſneps, beets, ſpinach, lettuce, radiſhes, and many other ſorts of ſmall plants, both of ſuch as commonly remain where ſowed, as explained under their proper heads, and for pricking out and tranſplanting into other compartments, that by being in beds with alleys between, is very convenient for ſowing, and alſo for pricking or planting ſmall plants, and the alleys admit of going between the beds to perform the neceſſary culture without trampling on the plants, or treading the ground about them hard and binding, and it alſo gives an appearance of uniformity to the garden; likewiſe beds, as above, are convenient for pricking and planting out many ſmall crops, as for pricking out young cabbages, cauliflowers, broccoli, celery, &c. and many ſorts of ſweet herbs, and for planting out lettuce, endive, leeks, garlick, ſhallots, rocambole, aſparagus, mint, balm, ſage, ſavory, and all the aromatic or pot-herb tribe; however, the diviſion into beds is often diſpenſed with in ſowing moſt of the principal crops, both of onions, leeks, carrots, parſneps, turneps, ſpinach, radiſhes, lettuce, beets, and ſeveral other ſorts, eſpecially in great crops, and in moſt of the conſiderable market grounds, generally ſowing in continued large compartments, as being more expeditiouſly performed, and no ground loſt in alleys; and in either of which every one may practice as ſeems moſt expedient.

Though many ſorts of plants are never cultivated in ſmall beds for final culture, but in continued ſpaces, larger or ſmaller, as the extent of ground admits, as peas, beans, kidney-beans, cabbage, ſavoys, broccoli, borecole, cauliflowers, coleworts, celery, cardoons, artichokes, potatoes, Jeruſalem artichokes, &c. all of which being generally raiſed in wide rows, from two or three to four feet aſunder.

But others again require to be conſtantly raiſed in beds, ſuch as aſparagus in particular, with two-feet wide alleys between,

between, both to admit of going in the alleys to gather the produce, which would otherwiſe be much ſpoiled by trampling on the beds, and alſo to admit of giving the beds the peculiar winter and ſpring dreſſing; likewiſe ſtrawberries ſhould be moſtly cultivated in four feet wide beds, with alleys between, or in borders, to admit of ſtanding in the alleys, &c. to water the plants, and gather the fruit, which, like the aſparagus, would otherwiſe be much damaged; and it is alſo proper to have moſt of the aromatic herbs in beds, as mint, balm, ſage, thyme, ſavory, &c. and will be convenient in many other ſmall plants.

The principal ſeaſon for ſowing and planting the general crops of the kitchen garden is the ſpring months, February, March, and April, for the main ſupplies of all ſorts, and May, June, July, for ſmaller ſucceſſion crops of particular kinds, and autumn, from Auguſt and September to November or December, for ſeveral principal crops to ſtand the winter, and for early crops next ſpring and ſummer; all of which as explained hereafter.

The work of ſowing, eſpecially by broad caſt, ſhould generally be performed while the ground is freſh ſtirred after digging, &c. or when the ſurface is moderately dry, neither hard cloddy nor cloggy wet, but ſo as the earth will readily moulder and yield to the rake without clogging thereto, and before it is become ſo dry that the clods will not break in raking, or by rain rendered wet and mirey; and always ſow principally in dry weather, when the ſurface is in proper order to rake freely; or in ſummer it is good to ſow when there is a proſpect of rain, or immediately after rain falls, or in ground that has been ſome time digged, and the ſurface become dry, and the clods hard and ſtubborn, it is eligible, if poſſible, to let it have rain, or watered, before ſowing, to meliorate and render it pliable to the rake after ſowing the ſeed.

Though, as to drill ſowing, this may be more eligibly performed both in moiſt and dry weather, or when the ground is wet or dry in a moderate degree. See *drill ſowing*.

And planting, likewiſe, is moſt eligible when the ground is freſh digged, though this is not ſo materially to be obſerved as in ſowing, and may be performed in any open weather, either as ſoon as the ground is digged or laid down, or in any moderate time after; but in ſummer, in particular, it is of importance to take opportunity of rain to perform all principal planting; and in ſpring, ſummer and autumn planting, in dry weather, it will be of much advantage to water particular plants, as ſoon as planted, as cabbage, cauliflowers, broccoli, ſavoys, celery, endive, lettuce, and all other above-ground plants, where convenient.

The different Methods and Rules for ſowing.

SOWING is performed by different methods, ſuch as, broad-caſt ſowing, and drill ſowing.

Broad-caſt ſowing is the moſt common method for general practice, and is effected by diſſeminating the ſeed from the hand in a ſpreading order over the general ſurface, either in a continued plat, proceeding in regular moderate ſpaces, to ſow every part equally, and directly raked in as regularly as poſſible, or in beds, ſowing bed and bed ſeparately longways, and rake in the ſeed in the ſame manner; or in either method, eſpecially the former, if dry light ground, ſowing the ſeed as above, then, before raking it in, firſt tread it down equally with the feet nearly cloſe, taking ſhort ſteps, and then rake in the ſeed evenly; and which method of treading in the ſeed in light ground, both ſettles the ſeed more regularly, that, in raking, it will be more equally and effectually covered in the earth, and where ſowed in continued compartments, when we are obliged to ſtand and tread on the ground in raking in the ſeed, the previous treading it down, every part equally, prevents the feet from ſinking in holes, in which much of the ſeed would be unavoidably drawn, and the plants would come up irregularly; likewiſe, treading in the ſeed in a light ſoil cloſes the ſurface to retain the moiſture longer; however, in wettiſh ground, or at early ſeaſons, in winter or ſpring ſowing, when the ground is rather wet or cloggy, treading is not eligible; and in which caſe, the ground being laid out in four feet, or four

and

and a half wide beds, with foot wide alleys between, it will be convenient to ſtand in the alleys to ſow and rake in the ſeed, without trampling on the beds to bind the ſurface hard.

Or in bed-ſowing and treading in the ſeed, may ſometimes, after treading it down, caſt ſome looſe earth out of the alleys evenly over the ſeed, then rake the beds; or firſt raking in the ſeed, either after treading it down, or raking in without treading, if it appears not effectually covered, pare the alleys one, two, or three inches deep, breaking the earth fine, ſpread ſome evenly on the beds, and with the rake lightly ſmooth the ſurface; or alſo in a dry ſeaſon, eſpecially in ſummer ſowing in dry weather, and light looſe ground, ſowing in beds as above, and after raking in the ſeed, may ſmooth the ſurface lightly with the back of the ſpade, to cloſe the earth more effectually over the ſeed, and which will more effectually reſiſt the drought, and retain the moiſture longer in the earth.

Likewiſe, ſometimes in bed ſowing, either at an early ſeaſon in winter or ſpring, in wettiſh ground, that will not rake kindly, the ſeed being ſowed on the ſurface, ſtrike it in a little with the back of the teeth of the rake, then trim up the looſe earth of the alleys, and ſpread it over the ſeed half an inch to an inch deep; or at any other ſeaſon, and the earth dry and ſtubborn, ſow the ſeed, ſtrike it in with the rake, ſmooth it down with the back of the ſpade, and ſpread earth out of the alleys over, as above; or ſometimes in particular ſeeds in ſmall crops, ſowing and ſmoothing down with the ſpade, cover it in by ſifting earth over it a quarter or half an inch; and which method is often practiſed in ſowing early ſmall ſallad in frames, hot-beds, and in the open ground occaſionally, when not ſowed in drills.

Another method of bed-ſowing occaſionally practiſed in ſome places for general crops is, the ground in level-digging is raked ſmooth every ſix, eight, or ten feet, then divided into beds four feet or four and a half wide, with ſpade-wide alleys between, and then ſtanding in the alleys, and with the back of a large rake, teeth upwards, ſhove the earth evenly off the ſurface of the bed, half an inch to an inch or more deep, according

to the ſize of the ſeed, into the oppoſite alley in an even ridge along the edge of the bed; then ſow the ſeed evenly on the ſurface thereof, and directly, with the rake turned in the proper poſition, teeth downward, ſtriking it into the further ſide of the ridge of earth that was ſhoved off the bed as above, draw the earth evenly over the bed again with a kind of ſpreading jerk, making it ſpread equally over the ſeed a regular thickneſs in every part; and in this manner proceed in the ſowing bed and bed; and when the ſowing is finiſhed, then with a light rake gently run over the ſurface of each bed longways, to trim off any ſtones and hard clods, to form the ſurface even and ſmooth; and which method of bed-ſowing may be practiſed occaſionally in moderate gardens, both in ſowing general crops of ſmall ſeeds in the broad-caſt order, or principally for any particular ſmall crops in beds, it being a very regular way of ſowing by which to cover the ſeed evenly and effectually all an equal depth, though is not ſo expeditious as the common broad-caſt manner and raking in the ſeed for ſowing the great crops or any conſiderable compartments, either in beds or continued plats.

Likewiſe bedding-in-ſowing, in other different methods, is alſo ſometimes practiſed for ſome particular crops; performed in four feet, or four feet and a half wide beds; firſt raking the ſurface even, ſow the ſeed thereon broad-caſt, then pare up the earth in the alleys two or three inches deep, breaking it fine, and ſpread it evenly over the ſeeds, from a quarter or half an inch to an inch thick, according to the ſize of the different ſorts ſowed, and with the rake lightly trim the ſurface ſmooth: or, another way for ſowing ſmall quantities of ſome ſorts of ſmalleſt ſeeds on particular occaſions, is by raking the ſurface of the beds fine, ſow the ſeed, ſmooth it down lightly with the back of a ſpade, then ſift fine earth over the ſeed a quarter to half an inch thick: and this method is alſo occaſionally practiſed in ſowing early ſmall ſallading in the broad-caſt way, both in hot-beds, and in natural beds of earth, to be defended with frames, &c. and in beds or borders in the open air; raking the ſurface of the beds fine, ſmooth them

them light and even with the ſpade; then ſowing the ſeed very thick over the general ſurface, each ſort ſeparate, ſmooth it down alſo lightly with the ſpade, and then ſift light dry mold over it, ſcarcely a quarter of an inch thick, or but juſt covered, is ſufficient for theſe ſorts, as being ſowed very thick, that they may come up freely and regular, which, in their peculiar cloſe-ſowed manner, would be greatly impeded if there was a thick cruſt of earth to come through. The ſame method may be practiſed occaſionally in ſowing ſmall ſupplies of other fine ſeeds, or any very ſmall ſeeds of curious flowers, &c. in beds, pots, boxes, or tubs.

However, for general ſowing in the kitchen-garden, the common method of ſowing broad-caſt on the rough ſurface, and raking in the ſeed, is the moſt ready and expeditious way for the principal great crops, both in large continued-plats and in beds.

In the common broad-caſt ſowing on the general ſurface, the raking in the ſeed ſhould be performed principally with a largeſt garden-rake, that the ſeed may at once be regularly interred a proper and equal depth, without being drawn in irregular patches: or, in bed-ſowing, may uſe a middling large rake, the teeth not too cloſely placed, which would be apt to draw the earth and ſeed in heaps, that the plants would come up in an irregular order. Or for any particular fine or ſmall ſeeds, a ſmaller light rake may be uſed, eſpecially in light looſe ſoils. And ſometimes in broad-caſt ſowing principal large crops, both in continued plats and beds, in light looſe mellow ground, the ſeed after ſowing being trodden down, as formerly explained, the raking in is occaſionally performed with a light long-headed wooden rake: obſerving in general, in raking in the ſeed in all broad-caſt ſowing, not to rake too often in the ſame place, which would be apt to draw the ſeed unequally, and be ineffectually covered: generally two regular ſtrokes of the rake in a place is ſufficient; and generally continue the raking right back, not croſſing the ſtrokes; and in beds always perform the raking longways of each in a ſtraight direction; and in all of which obſerve, as you proceed in the raking in, to draw off

ſtones, and to break or trim off hard lumpy clods, forming an even ſmooth ſurface.

But in ſome large market kitchen-grounds, in ſowing conſiderable compartments, they inſtead of raking in the ſeed ſometimes harrow it in with a light harrow drawn by one or two men; afterwards roll it with a wooden roller, to cloſe and ſmooth the ſurface over the ſeed more effectually, and that the earth may retain the moiſture longer, as well as to have a ſmooth even ſurface for the plants to come up in freely and regular.

And in the extenſive field kitchen-gardens, as about London, &c. the common method of broad-caſt ſowing is principally practiſed in conſiderable continued plats of ground, prepared by proper plowings and harrowing; then ſowing the ſeed on the general ſurface, it is commonly harrowed in both by light horſe-harrowing, and by men, occaſionally; and afterwards generally rolled with a long wooden horſe-roller, to moulder the clods, ſmooth and cloſe the earth evenly over the ſeed, as above obſerved, and that the ſurface may be even and fine for the plants to come up regular.

DRILL-SOWING is the general method to ſow ſeveral principal crops; performed by drawing drills with an hoe, principally corner-ways, and ſometimes with the flat of the hoe, from half an inch to one, two, or three inches deep; and from three, four, ſix, eight, or ten inches, to one, two, or three feet aſunder, in the different crops, as directed under their reſpective heads; the ſeed ſowed along the bottom of each drill, and covered in with the earth the above depths, according to the following methods.

This order of ſowing is the common and moſt eligible method for ſome particular crops, as peas and kidney beans, &c. and occaſionally for ſeveral other ſorts; as the ſowing in drills is a moſt ready method whereby to cover the ſeed regularly all an equal depth, and alſo to admit of more convenient and expeditious culture in weeding and hoeing between the crops; and that by giving room to introduce the hoe to cut up weeds and looſen the ſoil, proves very beneficial to the growth of the

the plants; and likewiſe in many crops by being in drills in rows more or leſs diſtant, according as their different growths require, is the moſt convenient order of growing them, and whereby to gather the produce moſt readily; ſuch particularly as peas, kidney-beans, parſley, and ſeveral others.

As before intimated, peas and kidney-beans are always ſowed in drills, from two or three to four feet aſunder, and ſometimes common beans are ſowed in drills, two or three feet diſtance, eſpecially the ſmaller kinds occaſionally; and for all of which, drawing the drills ſtraight by line with the corner of a common garden hoe, holding the edge next the line, going one or two to three inches deep; though for peas and kidney-beans about an inch or inch and a half to two inches is ſufficient depth, and the ſeed being ſowed along the middle of the drills, the peas ſcattered therein moderately thick, the kidney-beans placed regular along the middle two to three inches diſtance, and the common beans in the ſame order, two or three to four inches aſunder; and after ſowing, are covered in either by drawing the earth over them evenly, with the hoe or rake, or turning it in with the feet regularly on both ſides of the drill, covering the whole the full depth in proportion to that of the drills, as above, or rather a little more, making the covering ſomewhat ſwelling over the drill; and afterwards if very rough may be ſmoothed along lightly with the rake, to draw off ſtones or any ſtubborn clods, and to give the ſurface a more even and neat appearance, if required.

But drill-ſowing in gardens is practiſed occaſionally in many other crops, as parſley, ſmall-ſallad, chervil, coriander, alſo Alexanders, finochio, dill, naſturtiums, purſlane; and ſometimes for ſpinach, beet, ſalſafy, ſcorzonera, and various other ſorts occaſionally, both to remain where ſowed, and for tranſplanting, as mentioned, under their ſeveral heads, in the foregoing general culture; and for which the drills ſhould be drawn with an hoe of ſmaller or larger ſize, according to that of the different ſorts of ſeeds, ſhallower for the ſmall, and deeper for the larger kinds, drawing the drills principally

cipally with the corner of the hoe, or occaſionally flat-ways for ſome particular ſorts; going from half an inch to an inch or inch and a half deep for largeſt ſeeds, as ſpinach, beets, naſturtiums, &c. and from three or four to ſix, eight, or twelve inches aſunder, or more, as explained for the different crops under the ſeparate articles, as before obſerved: ſome alſo in a ſingle drill, along the edge of borders, &c. as often practiſed for parſley, thyme, ſavory, hyſſop, &c. generally ſowing the ſeed while the drills are freſh drawn, unleſs the ground is very wet, in early ſowing, in which they may remain open an hour or two or more to dry a little, ſowing the ſeed regularly along the bottom of each drill, thicker or thinner according to the different ſorts, and directly cover it in by raking the earth over it evenly; or ſometimes for fine ſeeds in ſmall quantities, or any ſowed in a drill along an edging, as parſley, the earth may be covered over the ſeed with the hand; and in either method, as ſoon as ſowed and covered in, the ſurface may be lightly trimmed along even with the rake, drawing off any ſtones, and hard ſtubborn lumps of earth, or break them ſmall in raking.

Or in ſowing ſome particular crops in drills, as ſmall ſallad, and ſome other ſmall ſeeds, the drills are ſometimes drawn with the flat of the hoe, edge downward, in a horizontal poſition, by which to draw flat ſhallow drills the whole width of the hoe, with a level bottom, all of an equal depth, half an inch to an inch, and three or four to five or ſix inches aſunder, ſowing the ſeed the whole width thereof, and covered in evenly with the fineſt earth a quarter to half an inch or more, according to the ſize of the ſeeds, or thickneſs they are ſowed; or for ſmall ſallad ſeed in particular, being ſowed conſiderably thicker than any other kinds, it ſhould be covered not more than about half a quarter to a quarter of an inch deep, or but very ſlightly covered, that, in their moſt thick growth, they may eaſily make their irruption through the earth: likewiſe ſometimes for ſowing ſpinach in drills, they are drawn with the flat of the hoe its whole width, as above, about an inch deep, ſix or eight to twelve inches diſtance; alſo ſometimes

times for parſley, chervil; ſowing the ſeed the width of the drills, as before obſerved, and earthed over evenly; that in the above flat-drill-ſowing, the drills may be drawn with ſmall and middling hoes, from two or three to five or ſix inches wide, as may be required, whereby to have a larger production in each row.

However, in common drill-ſowing moſt of the crops uſually ſowed in that order, the drills ſhould more generally be drawn with the corner of a hoe, ſmaller or larger, proportionable to the different ſorts of ſeeds, as before mentioned.

In general the drills ſhould be drawn croſsways the length of the compartments of ground, either in large quarters or borders, &c. or ſometimes in moderate beds and narrow borders they may be drawn lengthways thereof; though it is not always very material whether the drills are ranged acroſs or longways the compartments; and that in conſiderable field gardens, the drill-ſowing of peas, &c. where for greater expedition the drills are ſometimes drawn with a common or machine drill-plow, they are always drawn lengthways the lands: however in moderate or common kitchen-gardens, where hoe-drilling only is practiſed, it is generally more adviſable and convenient, in large compartments and wide borders, to range the drills croſsways the length as aforeſaid; and in ſowing early crops of peas and kidney-beans, &c. and alſo for peas and runner kidney-beans deſigned for ſticking, it would be moſt adviſable, where the width and length of the ground admits, to have the drills range ſouth and north, that the rows of plants may more effectually enjoy the benefit of the ſun equally on both ſides; and in thoſe ſticked, that its influence may be admitted more freely between the rows when the plants have aſcended the ſticks in full growth.

Common drill-ſowing may alſo be practiſed occaſionally in various kitchen-garden crops, by way of experiment, of ſuch as are uſually ſowed in the broad-caſt order, as turneps, carrots, parſneps, onions, leeks, red beet, &c. drawing drills in the common method with the corner of a middling hoe, ſix to eight, ten or twelve

twelve inches aſunder, and half an inch to an inch deep, ſowing the ſeed along the middle, and covered in agreeable to the foregoing directions; the plants to remain and thinned to the uſual diſtance: alſo ſometimes lettuce is ſowed in drills a foot aſunder, both to tranſplant, and part to remain that diſtance: likewiſe for tranſplanting, may ſow endive, cardoons, aſparagus, &c. in moderate drills ſix inches diſtance: and ſmall drill-ſowing may alſo be practiſed in many of the aromatic pot-herbs that are occaſionally raiſed from ſeed, as marjoram, thyme, ſavory, hyſſop, chervil, burnet, clary, dill, fennel, ſorrel, angelica, all in ſmall drills ſix inches to a foot aſunder; the plants ſome to remain, others tranſplanted, as explained under their proper heads.

Single drill-ſowing, or in a ſingle row along the edge of beds, borders, or quarters of the kitchen ground, is practiſed the moſt generally for parſley, which forms a cloſe uſeful green edging for a whole year: ſometimes alſo ſmall ſallad is ſingle-drill-ſowed along the edge of a border, &c. likewiſe occaſionally ſome of the pot-herb aromatics to remain for an edging, as thyme, marjoram, hyſſop, &c.

In the work of drill-ſowing let the drills be formed with ſmall or middling hoes, ſuitable to the different ſorts of ſeeds; or ſometimes in ſmall-drill-ſowing ſmall ſeeds in a ſingle row along the edge of a border, or in ſmall beds, &c. the drills may occaſionally be drawn with the end of a cornered ſtick; or alſo in hot-beds, or for any ſmall quantities of fine ſeeds in natural beds, ſmall drills may be formed with the ends of the fingers, or a ſmall ſtick, aforeſaid.

Drill-ſowing of peas, &c. in extenſive field grounds, is occaſionally performed by drawing the drills with a drill-plow, for the greater expedition in ſowing large quantities, and in which the drills are commonly arranged lengthways the lands, in rows two feet to two and a half or three feet aſunder, for the ſmaller and larger kinds of peas, and two to three inches deep.

Different

Different Orders of Tranſplanting and Planting.

Tranſplanting is the work of removing plants from one place to plant in another, either from ſeed-beds where firſt raiſed, or from beds wherein they have been formerly pricked or planted; and which in kitchen gardens is performed at moſt ſeaſons of the year, as occaſion requires, in the different crops of ſuch as are commonly tranſplanted, ſuch as cabbage, cauliflowers, ſavoys, coleworts, broccoli, borecole, celery, endive, leeks, lettuce, cardoons, aſparagus, artichokes, cucumbers, melons, gourds, pompions, and ſeveral other ſorts, with many of the pot-herb kinds, as explained under the ſeveral articles.

And planting is the buſineſs of inſerting in the ground both ſuch plants as are uſually tranſplanted or removed from one place to another, as above-mentioned, and of ſuch roots, ſeeds, &c. that are planted at once where they are to remain, as potatoes, Jeruſalem artichokes, horſe-radiſh, beans, liquorice, garlick, ſhallots, aſparagus, and ſome others; and is performed at different ſeaſons occaſionally, but principally in the ſpring, ſummer, and autumn.

The work of planting is performed different ways, as dibble-planting, drill-planting, trench-planting, trowel-planting, &c. as explained under theſe heads in the following directions; but in the greater part, in the kitchen garden, is performed by dibble-planting, both in all plants furniſhed with tops above ground at the time of planting, as cauliflowers, cabbage, broccoli, and all others of that tribe; as alſo lettuce, celery, endive, &c. as well as many kinds of ſlips, off-ſets, cuttings furniſhed with tops; and ſome likewiſe in underground planting in ſeeds, roots, and plants; as beans, potatoes, Jeruſalem artichokes, horſe-radiſh, liquorice, garlick, ſhallots, and ſeveral others not furniſhed with preſent tops at the time of planting them, are all generally planted by dibble. Several ſorts are inſerted by drill-planting, forming drills with a hoe or ſpade three to ſix inches deep, placing the roots and ſeeds in the drills, and earthed over; as aſparagus, mint roots, ſome-

ſometimes beans, potatoes, Jeruſalem-artichokes, garlick, ſhallots. Others occaſionally by trench-planting, particularly horſe-radiſh, effected by digging or trenching the ground in regular trenches two feet wide, and a ſpade deep, placing a row of ſets along the middle of the bottom of each trench, and earthed over with the earth of the ſucceeding: and by the ſame method ſometimes potatoes are planted, but each trench half way raiſed with part of the earth of the next, placing the ſet thereon, and earthed in five or ſix inches with the remaining earth of the ſecond trench; all of which is explained in their proper places: and firſt,

Dibble-planting, being the moſt general method in the greater part of the kitchen garden crops that uſually require tranſplanting or planting, and for which the moſt eligible kind of dibble is that made of the handle or tree of an old ſpade, formed eight to ten or twelve inches long in the ſhank, having the handle at top for hand-hold, the lower end made tapering to a point, and if ſhod with iron half way, it will be more eligible for clean and expeditious planting: or in default of ſuch a dibble, a ſetting ſtick may readily be made out of a ſtake, broom-ſtick, or any thing of that kind, generally formed with a croſs-handle or bend at top for hold, not to bliſter or hurt the hand; but a dibble for planting potatoes, horſe-radiſh, ſhould be longer and thicker than that as above for common planting, and not generally narrowed ſo much at the lower end, but rather blunt, in a rounded manner; that in making the holes, the ſets may go plump to the bottom. Likewiſe, for the ſame reaſon, a dibble for planting beans, garlick, &c. ſhould be ſomewhat round at the end; for, when pointed, the holes made therewith do not admit the beans to the bottom; a cavity remaining underneath is a diſadvantage in their growth; and ſometimes in early planting, water is apt to collect in the cavity below and rot them.

All planting is generally performed in rows, four, five, or ſix inches, to one, two, three, or four feet aſunder, according to the nature of growth and culture of

of the different plants, as explained under their ſeveral heads.

For dibble-planting of plants with tops above ground, (performed in ſpring, ſummer, autumn, &c.), draw the plants out of their preſent beds or other compartments, with as full roots as poſſible, and of which trim long ſtraggling fibres, pull away any damaged or decayed under-leaves, and in ſome particular ſorts that have ſometimes long ſtraggling top-leaves, as celery, endive, artichokes, leeks, cardoons, &c. cut off the long dangling parts; but never of cabbages, cauliflowers, ſavoys, or any other of the cabbage and colewort tribe, nor of but few other plants, except the above-mentioned; only in ſome particular ſorts of ſlips, cuttings, &c. as have long weak looſe tops, may be a little ſhortened.

In the work of planting the above, make a hole with the dibble for each plant perpendicularly, inſerting the plant directly, and ſtrike the dibble to the root in a ſlanting direction, to cloſe the earth effectually to the fibres without leaving any vacancy underneath, at the ſame time bear it cloſe to the ſtem of the plant above, cloſing the aperture directly as you proceed; and when finiſhed planting any particular crop, or as you go on, in ſpring, ſummer, and autumn, if dry weather, or even but ſlight ſhowery, a watering to ſettle and moiſten the earth cloſe about the roots will be very beneficial in promoting their freſh rooting more freely and expeditiouſly; and which, in very dry weather, if repeated once or twice, where convenient, will prove of ſtill greater advantage.

For under-ground dibble-planting of roots, ſeeds or plants not furniſhed with preſent tops, as potatoes, beans, Jeruſalem artichokes, horſe-radiſh, garlick, ſhallots, rocambole, liquorice, &c. performed principally in the ſpring, or ſome in autumn and winter, make a hole with the dibble perpendicularly for each ſett, ſeed, or plant, two, three, to four or five inches deep, except for the horſe-radiſh, which ſhould be a foot or fifteen inches, as mentioned for this and the other different ſorts, and the proper diſtance for each, under their proper articles, dropping a ſet, &c. in each aperture

aperture clean to the bottom, and ſtrike the earth in upon them with the dibble, filling up the hole cloſe to the top; or ſometimes in potatoe planting large quantities in fields, having a large long dibble with a croſs handle at top, and with an iron ſhoulder, five or ſix inches from the bottom, to uſe the foot occaſionally, and as a guide for ſtriking the holes expeditiouſly all an equal depth: one perſon ſtrikes the holes with this dibble, followed by a boy, girl, or woman, who drops a ſet in each hole, without cloſing them up till one or more lands are planted, then the ground is harrowed to fill in the holes over the ſets.

To dibble-plant off-ſets, ſlips, cuttings, &c. of any perennial herbs, the bottom off-ſets in many ſorts may be detached with roots in ſpring or autumn, as in balm, pennyroyal, chamomile, cives, tanſey, tarragon, mint, ſtrawberries, and ſometimes ſage, ſavory, thyme, pot and winter marjoram; and which plant by dibble in any beds or borders to remain, ſix to eight, ten, or twelve inches diſtance; in others not furniſhing rooted off-ſets, or a ſufficiency thereof, take ſlips or cuttings of the top young ſhoots, as ſage, ſavory, hyſſop, rue, roſemary, lavender, &c. in ſpring and ſummer, chuſing the young outward and top ſhoots, five or ſix to eight or ten inches long, ſlipped or cut off, detaching the under leaves, and plant the ſlips principally in a ſhady border, dibbling them in about two-thirds or more into the ground the diſtance as above; give water at planting, and afterwards occaſionally in dry weather; and when well rooted and formed tolerable buſhy tops by autumn, about September, or in ſpring following, they may then be tranſplanted with balls of earth to their roots, making a proper aperture for each with a garden trowel or ſmall ſpade; and as ſoon as planted, give a moderate watering; but of the above, the cuttings of the ſtalks of mint and tarragon in ſpring and autumn ſhould be planted at once in any bed or borders, to remain.

PRICKING-OUT PLANTING by dibble is principally the pricking-out ſmall young ſeeding plants from ſeed-beds into nurſery-beds at ſmall diſtances in ſpring and ſummer,

ſummer, &c. for three, four, five, or ſix weeks, or more, to acquire ſtrength for final tranſplanting; ſuch as cauliflowers, cabbage, broccoli, borecole, ſavoys, coleworts, celery, young ſpring lettuce, and ſeveral aromatic potherbs, &c. and is a very neceſſary buſineſs, where the plants are thick in the ſeed-beds, in ſpring, ſummer, and autumn, and when of two to three or four inches growth, drawing them out in a thinning order, and having prepared four feet wide beds of rich earth, prick them with a ſmall dibble in rows three or four to five or ſix inches aſunder, as explained for the different ſorts under the ſeveral articles; give water at planting, repeating it in dry weather till they take root and grow; and by thus thinning the ſeed-beds, the remaining plants being alſo watered, to ſettle the earth, if looſened in drawing out the others, they will have room to acquire a proper growth for tranſplanting, and thoſe in the pricked-out beds will attain a preferable growth for the ſame purpoſe; and each of which, in ſummer and autumn, &c. the ſame year, when acquired due ſize and ſtrength, ſhould be tranſplanted finally in wide rows, where they are to remain, and properly watered.

DRILL PLANTING is practiſed principally only in ſome particular crops for under-ground planting, ſuch as ſome large ſeeds, and ſeveral ſorts of plants and roots, &c. not furniſhed with preſent tops, generally in ſpring, or occaſionally the end of autumn and in winter, and is performed by drawing drills with a common garden hoe, ſmaller or larger, corner ways, two, three, to four, five, or ſix inches deep, and from ſix inches to two or three feet diſtance, according to the growth of the different plants, as explained under their ſeveral articles, placing the ſeed, ſets, roots, &c. in the bottom of the drills, and covered in with the earth a regular depth of the drills, as above, either with the hoe, rake, or turned in with your feet in large crops; and which method of planting is occaſionally practiſed in planting beans, potatoes, Jeruſalem artichokes, garlick, ſhallots, rocambole, mint-roots, likewiſe aſparagus; but for the latter, the drills are more commonly and effectually

tually formed with a ſpade, cut out upright on one ſide ſix or eight inches deep, placing the roots againſt the upright ſide, the crowns two or three inches below the ſurface, and a foot aſunder, and rake the earth over them; alſo in planting old dried onions for ſeed, drill-planting is proper four inches deep; and ſometimes for ſeed-turneps; but which ſhould be aſſiſted alſo with dibble, making holes in the bottom of the drills to inſert the ſmall tail part of the turnep perpendicularly.

In drill-planting in fields for potatoes, beans, and ſeed-onions and turneps, &c. the drills, for greater expedition in large quantities, are commonly drawn with a plough.

TRENCH-PLANTING is only practiſed occaſionally, and that for ſome particular roots, &c. in under-ground planting, ſuch principally as horſe-radiſh ſometimes, and ſometimes potatoes; a trench is digged out along one end of the ground, two ſpades wide and one deep, placing the horſe-radiſh ſets in a row along the bottom; digging the next trench, turn the earth in upon the ſets ten or twelve inches deep; and ſo proceed trench and trench: and to trench-plant potatoes, dig open a trench at one end, as for the horſe radiſh, then digging along firſt one ſpit or ſpade wide of the next trench, turn it into the bottom of the firſt, levelling it even, place a row of potatoe ſets upon this along the middle; which done, dig the remaining half part of the other trench, throwing it evenly over the ſets, and then may alſo trim up a ſmall bottom ſhovelling over the whole, to have four or five inches depth of earth over the plants.

But trench-planting is alſo occaſionally practiſed in planting ſeveral ſorts of large roots and plants for ſeed, ſuch as carrots, parſneps, red beet, cabbages, ſavoys, &c. digging open a two feet wide trench along one end of the ground a good ſpade deep, dig the next trench into this, then along the edge of the dug ground plant the roots, plants, &c. perpendicularly one or two feet aſunder, the root part into the trench down to their top, inſerting the carrots, parſneps, beets, or other long roots, with the crowns a little under the ſurface, the cabbage and ſavoys with the heads juſt above, but cloſe down

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to the ground; and then digging another trench, turn the earth into the former upon the roots and ſtems of the plants up to their tops or heads, as above; plant then another row of roots or plants as before; and ſo proceed trench and trench to plant as many as required.

Likewiſe trench-planting in another method, is the common practice for planting celery in particular, which is performed in narrow trenches a foot wide, remaining open; and for which theſe trenches are marked out in undug ground, a foot wide, and a yard or three feet and a half diſtance; then digging out the earth of each trench a moderate ſpade deep, ſpreading the earth equally in the intervals in a level order; which done, dig the bottom of each trench moderately, and in each of which plant a row of celery along the middle of the bottom; and when the plants are advanced in growth, they are to be earthed up by degrees, both with the earth digged out of the trenches, and that in the ſpaces between, till landed up from one to two ſeet high, to blanch them white and tender for uſe. See *Celery*.

Another method of trench-planting celery, practiſed in ſome places, is by marking out beds five or ſix feet wide, with ſpaces the ſame width between; then digging out the earth of each bed a ſpade deep, laying the earth equally to both ſides in the interval ſpaces, thus forming a wide trench of five or ſix feet, as above; dig the bottom, and in which plant the celery in rows croſsways a foot diſtance; and when advanced to proper growth, begin to earth them with the earth of the intervals, trimming it in between the rows of plants; and when theſe are much advanced in top, may have a couple of thin boards, placing them between the rows cloſe to the plants, to keep them upright, throwing in the earth between; then draw up the boards, uſe them in the ſame manner in earthing the reſt.

TROWEL-PLANTING in kitchen-gardens, flower-gardens, and pleaſure-ground, is ſometimes uſed in tranſplanting particular ſmall plants, with balls of earth to the roots, ſo as to receive but little or no check by removal, as ſometimes cucumbers and melons,

lons, &c. from one bed to another, or occaſionally other tender or choice plants, or alſo ſometimes particular plants that have been raiſed by cuttings, ſlips, &c. as ſeveral of the aromatic kind, and required to remove or tranſplant them on particular occaſions without much check in their growth, as ſage, ſavory, hyſſop, thyme, rue, lavender, &c. as likewiſe ſome plants from beds or borders into hot-beds for forcing in winter, &c. as lettuce, ſtrawberries, bean plants, &c. removed with ſmall balls of earth; as alſo in the flower and pleaſure garden numerous ſorts of flower-plants may be removed with balls; and for which ſeveral purpoſes, ſhould have generally a ſcooped trowel, ſold at the ironmongers, which, in removing the plants, thruſt down ſlantingly by the ſide and under the main roots, raiſing them up with the ball of earth cohering, or ſometimes firſt open the earth a little around, a ſmall diſtance from the plant, then introduce the trowel underneath the root, bringing it clean up with the ball of earth, without diſturbing the main root and principal fibres: and in the places deſigned to plant them, open with the ſame trowel an aperture for each plant, capable of receiving it with the ball of earth entire, placing it therein, and give directly a moderate watering.

BEDDING-IN PLANTING is ſeldom uſed in kitchen gardens, except ſometimes for potatoes, mint roots; marking out beds four feet and a half wide, with alleys between two feet wide for the potatoes; dig the beds, place the potatoe-ſets on the ſurface a foot diſtance; then digging the alleys, ſpread the earth over the ſets three or four inches deep: or for mint roots, the alleys being fifteen or eighteen inches wide, and the beds digged, place the roots thinly upon the ſurface, dig the alleys, and ſpread the earth over the roots two inches thick.

PLANTING IN POTS is only practiſed occaſionally in kitchen gardens in ſome early tender plants, and ſome others, as cucumbers and melons, for the ready removing from one hot-bed to another, with good balls of earth, to their roots, having ſmall pots filled with rich mold; and while the plants are young in the ſeed-leaves, prick four cucumbers, and but two melon plants in each pot,

as directed in their culture; likewiſe ſtrawberries when deſigned for forcing, planting one plant in each pot, ready, when of a bearing ſtate, to place in hot-beds, hot houſes, or other forcing apartments; alſo kidney-beans to raiſe early for hot-houſe, or any forcing houſe culture, planting three or four beans in each pot: all as explained under their proper heads.

Obſervations on the general Culture after Sowing and Planting, and in the advancing Growth of the different Crops.

After ſowing and planting the general and ſucceſſional crops in ſpring, ſummer, and autumn, the material future culture is occaſional watering; general weeding by hand and hoe, which, in particular, will require conſiderable attention in all crops, to perform in due time before the weeds grow large, or overtop the plants. Likewiſe many crops will want thinning, ſuch as remain where ſowed, as onions, leeks, carrots, parſneps, beets, turneps, ſpinach, radiſhes, lettuce, &c. Many alſo will want pricking out, planting, and tranſplanting, as cauliflowers, cabbage, broccoli, ſavoys, coleworts, celery, lettuce, endive, cardoons, &c. likewiſe hoeing will be very eſſential buſineſs all ſummer, both in broad-hoeing between all crops in rows, and ſmall hoeing to thin many cloſe crops, to requiſite diſtances, and to cut up all intervening weeds.

WATERING will be neceſſary occaſionally in dry weather, both in ſeed-beds of ſeveral ſmaller ſeedling-crops, ſometimes before they come up, in a very dry ſeaſon of ſpring and ſummer, and alſo after the plants appear in their young growth; and which, if in beds in moderate compartments, may be conveniently performed; but, in conſiderable ground, in large crops, would not be ſo practicable: however, in very dry weather it will be of great utility in many ſmall crops of ſeedlings; and in which it ſhould always be performed with the head or noſe of the watering-pot on the ſpout, and which in ſpring may be performed any time of the day; but in hot weather in ſummer, morning and evening are the moſt eligible times for general watering, eſpecially if ſunny, that the moiſture may have time to

reach the roots before exhaled too much by the ſun; but if cloudy, may water at any time of the day when convenient: likewiſe in all pricking-out and planting in moſt ſorts of young plants, watering is of great advantage in dry warm weather, or even if it rains but moderately, or ſlight ſhowers that penetrate but ſlightly in the ground, watering at planting will be very neceſſary to ſettle and moiſten the earth about the roots of the plants, to promote their rooting again ſooner and more effectually; and which, in ſmall cloſe planting or pricking-out, ſhould be performed with the head of the ſpout of the pot on; but in wide planting, it may be done either with or without the head; and if continued dry weather, the waterings repeated two or three times, till the plants take good root and begin to grow, will prove additionally beneficial in forwarding them in a free growth from the beginning.

Alſo in ſeveral advanced crops watering will be very neceſſary in exceeding dry weather, ſuch as cauliflowers in May and June, to promote the ſize of the heads; alſo early peas, beans, and kidney beans, on warm borders, eſpecially when in bloſſom and podding, to aſſiſt their ſetting a plentiful crop of pods, and forward them in growth for earlier gathering; likewiſe to ſtrawberries when in bloom and ſetting their fruit, frequent plentiful watering is a very neceſſary work in dry ſeaſons, to enſure a good crop of berries of a handſome full growth; and to all crops in hot-beds, forcing-houſes, &c. watering will be required at all times, once, twice, or thrice a week, according to the ſeaſon, as cucumbers, melons, kidney-beans, peas, ſallading, ſtrawberries, radiſhes, and ſeveral other ſmall plants; alſo to cucumbers, both in the hand-glaſs crops and the picklers, &c. in the full ground, watering in dry hot weather will be required in their young and advanced growth all ſummer, two or three times a week, or ſometimes every day.

WEEDING is a work of great attention in the kitchen garden in the advanced part of the ſpring, all ſummer and autumn, and occaſionally in winter, both by occaſional hand-weeding in many ſmall cloſe crops, others by

by ſmall-hoeing, and many large crops in rows by broad-hoeing; and all of which ſhould be very particularly attended to, in proper time before the weeds over-run the crops, or advance much in growth, or any come to ſeed, to eradicate them with the utmoſt diligence, both for the advantage of the various crops, and that the ground may always appear clean and decent; and by proceeding in this timeouſly before the weeds ſpread or grow large, the work can be more readily and effectually performed, to the great advantage of the plants, and with conſiderably greater expedition than when much advanced.

Hand-weeding is neceſſary in many ſmall cloſe crops, both in ſuch as remain, and others for tranſplanting, and likewiſe in many ſorts that remain and are uſually thinned, where not performed by ſmall-hoeing, as onions, leeks, carrots, parſneps, turneps, ſpinach, lettuce, radiſhes, beets, ſcorzonera, ſalſafy, and the like kinds; and in all of which, if in beds with alleys between, the hand-weeding can be more conveniently effected by ſtanding in the alleys without trampling on the plants or treading the ground hard, always performing it while the weeds are ſmall, before they overtop the plants; and at the ſame time the crops that require thinning of the ſorts above mentioned, may be thinned as you advance in the weeding, to three, four, five, or ſix inches diſtance, or more, according to the different ſorts, if not intended by ſmall-hoeing.

HOEING is alſo a very neceſſary buſineſs in the kitchen garden in ſpring, ſummer, and autumn, between ſuch crops as the hoe can be admitted, either in ſmall or broad-hoeing; better to cut up all advancing weeds in their early growth, and to thin particular crops that remain where ſowed, by ſmall hoeing, as onions, carrots, parſneps, turneps, ſpinach, lettuce, beets, radiſhes, large-rooted parſley, ſcorzonera, ſalſafy, &c. and alſo in many tranſplanted crops in rows, by broad-hoeing, as cabbages, cauliflowers, beans, peas, kidney-beans, coleworts, broccoli, borecole, ſavoys, lettuce, cardoons, &c. alſo between rows of potatoes, artichokes, Jeruſalem artichokes, aſparagus, and ſeveral

other plants in wide rows, to cut up all weeds, looſen the ground, and to hoe up ſome earth about the bottoms of the ſtems of all the ſtalky kinds, to forward and ſtrengthen their growth; and the work of hoeing is not only an expeditious method of eradicating weeds, but by ſtirring and looſening the ſurface of the ground about the plants in general, proves very beneficial culture in forwarding the whole in a free growing ſtate.

All hoeing ſhould generally be performed in dry weather, both as the work can then be done with greater effect and expedition, and that the cut up weeds and ſuperabundant plants in thinning may quickly die, without rooting again; and in performing which, always cut the weeds, &c. clean within the ground to the root out of the earth.

SMALL HOEING is practiſed in the advanced part of ſpring, and at different times in ſummer and autumn, in thinning and cleaning from weeds various cloſe crops that remain where ſowed, and that commonly require to be thinned to eligible diſtances in which to acquire their proper growth; and when not performed by hand, ſuch as onions, leeks, carrots, parſneps, beets, turneps, ſpinach, radiſhes, ſalſafy, ſcorzonera, large-rooted parſley, and ſome other cloſe crops, as before obſerved, and as mentioned under their reſpective heads, and which will require this operation when from two, three, or four, to five or ſix inches growth, according to the nature of growth of the different ſorts of plants.

Have for this purpoſe a ſmall ſhort handled one-handed hoe, not exceeding two or three inches wide, eſpecially for onions, as alſo carrots, if to be thinned but moderately, to draw young, likewiſe for ſpinach and radiſhes, and therewith cutting up all weeds, and thin out the plants to four or five inches diſtance; but for crops of carrots, parſneps, red beet, turneps, and for the other ſorts above-mentioned, may uſe a middling hoe, three or four inches wide, hoeing up the weeds, and thinning the plants of theſe five or ſix to eight, ten, or twelve inches in the different ſorts, as explained under the ſeveral articles; and in which,

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the hoeing in ſome ſorts will require repeating, probably once or twice, according as weeds advance again, or the plants of any want further thinning, not effectually performed at firſt hoeing; others of quick growth at top will probably not require more than one hoeing, as turneps, carrots, parſneps, &c. in which the leaves, ſpreading quickly, ſoon cover the ground, and prevent the further growth of weeds.

Thus the above work of ſmall-hoeing, being performed in dry weather, the cut up weeds and ſuperfluous plants will ſoon die; and the ſtirring and looſening the ſurface of the earth will contribute exceedingly to the free growth of the ſeveral crops.

Sometimes in ſmall-hoeing onions, carrots, ſpinach, &c. that in default of a proper ſmall hoe, an old broad-ended table knife, ſquare at the end, and bent to one ſide about an inch, or inch and a half, will make a good ſubſtitute for hoeing theſe and ſeveral other cloſe crops; and with which may run over them, cutting up weeds, and thinning the plants very expeditiouſly and effectually.

Or ſmall-hoeing is alſo neceſſary among various ſmall plants that have been pricked out or tranſplanted in cloſe rows from four, five, or ſix inches, to a foot diſtance, when not room to introduce a wide hoe; and which may be performed either with a ſmall hoe, of two or three inches, or with a knife-hoe above-mentioned.

BROAD-HOEING is performed with a middling or large hoe, four to five or ſix inches broad, to hoe among all plants that ſtand diſtant in rows from one to two, three, or four feet diſtant, as coleworts, cabbages, cauliflowers, beans, peas, kidney-beans, potatoes, Jeruſalem artichokes, ſavoys, broccoli, borecole; generally moſt neceſſary in ſpring, ſummer, and autumn, cutting up all weeds, ſtirring and looſening the ſurface of the ground, and hoeing up ſome earth about the bottom of the ſtems; alſo between rows of artichokes, celery, lettuce, endive, cardoons, and all other plants planted or ſowed in rows diſtant enough to admit the above ſized hoe between; as this hoeing is not only

more expeditious and effectual than hand weeding, but by looſening the ſurface of the ground, as before ſuggeſted, is always very beneficial to the growth of the reſpective crops; obſerving in hoeing up large weeds to ſtrike them clean out of the earth by a ſtroke of the hoe as you proceed; or ſometimes where the hoeing has been too long omitted, and the weeds numerous and large, it will probably be neceſſary in ſome particular crops, to rake or fork off the groſſeſt part of them, eſpecially if wet weather happen immediately after, or the ground very wet, that they may not grow again, or ſhed their ſeeds; as many ſorts in the above ſtate of large growth will ripen and diſſeminate their ſeed as they lie on the ground, and lay a foundation for a numerous troubleſome future crop, both the ſame ſeaſon and for many years to come.

Likewiſe broad-hoeing is neceſſary occaſionally in all vacant ground where weeds make their appearance, cutting them down in their early growth, and always before they ſtand long enough to ſeed, ſtriking them clean off within the ground, out of their places; and if any are very large and ſeedy, rake or fork them off in heaps, or to be turned in when the ground is digged or trenched.

Or for broad-hoeing between conſiderable crops in wide rows, or in vacant compartments, a ſcuffling or Dutch hoe, to puſh forward in hoeing, makes very expeditious work.

In autumn, till October or November, be careful to give good effectual hoeing in all opportunities of dry weather, to exterminate all autumnal ſeed weeds and others before winter, between the various crops in rows, where room for ſmall, middling, or broad-hoeing, cutting the weeds clean up to the bottom; for hoeing down weeds in winter is but of little effect, eſpecially large weeds, unleſs forked or raked off, otherwiſe will ſoon grow again.

Though occaſional hoeing in October, November, or December, in dry open weather, between crops of coleworts, cabbages, broccoli, ſavoys, &c. to looſen the ſoil, and cut up caſual weeds, will prove beneficial to the crops, by looſening the earth about the ſtems of

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the plants, and by ſtirring the ground, it will dry the ſurface, and be more comfortable to the plants in general, and greatly aſſiſt their free growth, as well as help to deſtroy ſlugs, and other crawling vermin that harbour near the ſurface and annoy many ſorts of ſmall plants in their young ſtate.

Hints for ſucceſſional cropping the Ground, and intercropping to make the moſt of the Ground where neceſſary; and to gain Time in forwarding the ſucceſſion Crops.

After the foregoing general directions in the cultivation of the kitchen garden, and of the ſeveral crops thereof, I ſhall here give ſome further hints relative to ſucceſſion crops, and to gain time and ground where neceſſary.

Therefore with regard to ſucceſſion cropping, that according as the ſeveral ſummer and autumn crops attain perfection, and all gathered, or conſiderably diminiſhed, or nearly done their principal growth, ſo as they will ſoon be cleared off the ground; no time ſhould be loſt in the proper ſeaſon, either to prepare by digging ſuch vacant ſpaces, for freſh full cropping, or to inter-ſow or plant between rows of remaining plants, ſoon coming off, in order to be in all poſſible forwardneſs for neceſſary ſucceſſion crops, to come in the ſame ſummer and autumn, or ſome for the enſuing winter and ſpring; ſuch as ſowing ſucceſſional crops of lettuce, radiſhes, ſpinach, peas, beans, kidney beans, turneps, ſallading, onions, carrots, endive, coleworts, cabbage, &c. and for planting ſucceſſion of cabbages, cauliflowers, lettuce, celery, endive, full crops of ſavoys, broccoli, borecole, coleworts, leeks, cardoons, endive, celery, and ſeveral aromatic herbs, and other plants, as explained for the different ſorts under their proper heads; obſerving, in all of which, ſowing and planting for ſucceſſion, be careful not to omit the proper ſeaſon.

Likewiſe, where neceſſary to make the moſt advantage of the kitchen ground, and to gain time in general and ſucceſſional cropping, we may intercrop both in ſowing and planting, between many ſorts of plants that are cultivated in rows and beds, as ſowing of ſpinach

and radiſhes in the ſpring between rows of cabbages, cauliflowers, beans, artichokes, &c. planting rows of cabbages, coleworts, and ſavoys, between wide rows of beans, kidney beans, peas, in ſummer. As alſo between advanced crops of cauliflowers, and early cabbages nearly at full growth, and that will moſtly ſoon be cleared of, may be planted coleworts, ſavoys, cabbages, trenches of celery, rows of lettuce; or ſometimes to ſow ſucceſſion crops of radiſhes, ſpinach, lettuce, kidney beans, turneps, in June, July, &c. for autumn; or between rows of early cauliflowers, &c. may ſow holes of cucumbers in May and beginning of June for picklers, &c. or alſo between wide rows of hand glaſs cauliflowers, eight or ten feet aſunder, make hot-bed ridges in May for cucumbers under hand-glaſſes, as practiſed by the London gardeners, for the main ſummer crops in June, July, and Auguſt: and between trenches of new planted celery may plant one or two rows of endive, lettuce, or coleworts, that will come off time enough to admit of full earthing up the celery in autumn or beginning of winter, or between wide rows of new planted leeks, may plant a row of lettuce, or endive, in every other interval; or leeks planted in the ſame order between rows of the two latter; and between wide rows of artichokes and cardoons, may ſow temporary ſmall crops of ſpinach, radiſhes, lettuce, turneps, or ſow any tranſplanting crops, as cabbages, ſavoys, coleworts, endive, lettuce, to plant out in young growth; or where ſpring and winter ſpinach is ſowed, may plant rows of cabbage or colewort plants a yard diſtance by one, to two, or three feet in the lines. Endive planted between Cos lettuces, or theſe between endive. Coleworts for autumn and winter may be planted thick between wide rows of late beans, in July, Auguſt, and September, when the beans will ſoon come off, and the coleworts gain two or three weeks growth or more; or, after winter dreſſing aſparagus beds, in October or beginning of November, may plant two or three rows of coleworts in the alleys for early ſpring uſe, or may alſo plant theſe or cabbage lettuces upon each bed, or as many as required, to come off by March; Rows of large garden

beans

beans may be planted on the ground where potatoes are newly planted, having the rows of beans four or five feet diſtance. Alſo in ſowing onions, leeks, carrots, parſneps, red beet, may ſcatter a thin ſprinkling of Cos lettuce, and a ſmall portion of ſhort top radiſh; the lettuce ſome to plant out young, others remain one or two yards diſtance, and the radiſhes drawn off young in May; and rows of lettuce, endive, or coleworts, maybe planted in the alleys, between onion beds, or of other ſmall crops; and in planting aſparagus, a moderately thin crop of onions may be ſowed the firſt and ſecond year; ſpinach and radiſhes on new planted horſe-radiſh ground.

The above hints for intercropping are intimated juſt to remind where it may be neceſſary to make all poſſible advantage of the kitchen ground, and to have every part in full crops in regular ſucceſſion, and to gain time in the ſucceeding growths, without waſting time to wait for the different original crops coming off, and which practice may, in many gardens, be neceſſary; in others it may be in part requiſite in gaining time in advancing ſucceſſion crops; and not ſo neceſſary in making double advantage of the ground, eſpecially in ſome large family gardens, where in many places there is more than is wanted even in the common ſingle method of cropping.

Obſerve further, in ſowing or planting in the general way where any crops fail in ſeed or plants, loſe no time, to omit the ſeaſon, in waiting in expectation, but ſow or plant again as ſoon as poſſible before the proper ſeaſon is paſt. Likewiſe where any plants in their young immature growth run to ſeed, as cabbages, cauliflower, celery, endive, lettuce, &c. pull them up directly and plant others immediately.

Hot-Beds, their Utility, proper Sorts, Method of making, neceſſary Plants raiſed therein, and general Management.

Hot-beds of horſe dung and tanner's bark, in the kitchen garden, are of great utility both in raiſing ſeveral of the moſt tender exotic eſculents, as cucumbers, melons, &c. which cannot be obtained without that

aid, eſpecially before late in ſummer, and that only cucumbers, but ſeldom melons: likewiſe capſicum, love apples, baſil; and for producing early crops of many of the choicer hardy plants, ſometimes ſeveral weeks or months before their natural ſeaſon in the open ground, ſuch as early aſparagus any time in winter and ſpring, early ſallading, radiſhes, lettuce, carrots, peas, kidney beans, mint, tarragon, muſhrooms, ſtrawberries, purſlane, and ſometimes early potatoes and turneps, and for which hot-beds are made at different times from the end of September, or any time in October, or beginning of November, all winter and ſpring till the end of May, according to the time the ſeveral crops may be required;—as for example:

For cucumbers and melons the principal ſeaſon for making hot-beds is January, February, or March, till the middle or end of May: thoſe made after the middle or end of April are generally defended with frames and lights; and from April to the end of May are protected under hand-glaſſes and oiled paper frames. See *Cucumbers* and *Melons*.

Or for love apples, capſicum, baſil, March and April is the proper time for ſowing them in hot beds. See *thoſe articles*.

Aſparagus hot-beds may be made any time from the latter end of September, or any time in October, or beginning of November, to February, March, and April; or, if required in conſtant ſucceſſion all winter, &c. ſhould be made every month all that ſeaſon. See *Aſparagus*.

Early radiſhes are alſo obtained in hot-beds, both of the common ſpindle-rooted ſorts, and white turnep radiſh, by ſowing therein, in December, January, and February; but principally January and February is the moſt ſucceſsful time for making the hot-beds and ſowing to obtain more certain good crops to draw in February and March. See *Radiſhes*.

For early ſmall-ſallading, as creſſes, muſtard, rape, radiſh, in hot-beds; the beds are made and ſeed ſowed any time in winter and early ſpring till March, gene-

rally

rally every fortnight to have a plentiful ſucceſſion of young. See theſe different articles. Alſo *Small Sallad*.

Early lettuce, in hot-beds, is obtained both by planting large plants therein from natural beds, or warm borders, or beds defended with frames, &c. any time in winter, for cabbaging in that ſeaſon and ſpring: and by ſeed ſowed in hot-beds in January and February, both ſome for eating young from the hot-beds, particularly white cabbage lettuce, and of theſe and Cos lettuce to forward for early planting out in warm borders in March and April, to cabbage in May and June. See *Lettuce*.

Carrots to raiſe early in hot-beds are ſowed therein about January, or beginning or middle of February, to draw in April and May, &c. See *Carrots*.

Peas to raiſe early in hot-beds are ſowed, or young plants from the natural ground of one or two inches growth are planted therein, about January and beginning of February, to gather in April. See *Peas*.

Kidney-beans may be planted in hot-beds in January, but more ſucceſsfully in February and March till April, to gather in March, April, and May. See *Kidney Beans*.

Mint and tarragon, tanſey, &c. required early, may have ſome full roots of each ſort planted in moderate hot-beds in any of the winter months till February; they will furniſh green ſhoots all winter till the natural production commences in the ſpring. See theſe Articles.

Muſhrooms being always raiſed by a kind of hot-beds, in their culture in gardens, made at any time of the year; but principally in autumn for the main production, the moſt general ſeaſon for making them being Auguſt, September, or October, or any time in winter or ſpring; one bed often continues ſeveral months in production, in winter, ſpring, &c. See *Muſhrooms*.

Strawberry hot-beds for early fruit are made principally in January or February in ſucceſſion till April, to produce in March, April, and May. See *Strawberries*.

Purſlane for early ſpring uſe is ſowed in hot-beds in February and March. See *Purſlane.*

For early potatoes in hot beds, they are planted therein about January and February, to produce in March, April, and May. See *Potatoes.*

Early Dutch turneps are alſo ſometimes ſowed in a hot-bed in February, for drawing early in April and May. See *Turneps.*

Several other articles are alſo occaſionally forwarded by ſowing and pricking in hot-beds, to have them earlier of a proper growth for tranſplanting into the full ground, ſuch as cauliflowers, early cabbage, red cabbage ſowed in January, February, or March; eſpecially when the winter ſtanding plants raiſed in autumn are killed or much damaged by the froſt, &c. or in default of ſuch plants raiſed in autumn, ſome ſeed ſowed early in the ſpring in hot-beds brings them on ſome weeks earlier for final tranſplanting; and alſo hot-beds for pricking thoſe kinds in, to bring them ſtill forwarder; and likewiſe hot-beds in which to ſow celery in February or March, a few for the earlieſt crops; alſo to ſow lettuce in January or February, and likewiſe to prick the young plants thus raiſed in March to forward them for final tranſplanting in April, to cabbage early in May and June; and ſometimes in default of winter ſtanding crops of young onions, in the open ground, a few are raiſed in hot-beds, ſowed in January or beginning of February, to draw young in March and April for ſallads, &c. See the above ſeveral articles.

And by hot-beds, many ſorts of curious ornamental annual flowers are raiſed to a proper growth by ſowing in the ſpring, for planting out in borders, beds, and pots, for flowering in full perfection in ſummer.

Thus, from the above intimation, appears the utility of hot-beds in raiſing tender and forwarding ſeveral other crops to early perfection, as may be required, and where there are proper materials of hot dung, frames, glaſſes, &c. for making the beds for theſe purpoſes.

The PROPER MATERIALS neceſſary for hot-beds are principally freſh horſe ſtable dung, conſiſting of the long

long and ſhort moiſt warm or hot litter and dunging of the horſes together cleared out to the dunghill from ſtables daily where horſes are conſtantly kept and littered down with ſtraw, which being rendered wet by the urine and dung, &c. of a peculiar hot quality, acquires a ſtrong durable heat, of a proper temperature for principal hot-beds; and occaſionally tanner's-bark hot-beds ſuperior for ſome particular crops, as this material effects a more moderate and regular durable heat than dung, but being not always ſo eaſily obtained, hot-beds for principal forcing may be made generally of the above-mentioned horſe dung; and to have proper frames and glaſſes to place on the ſaid beds, or hand glaſſes and oiled paper frames for late hot-beds; rich light earth wherewith to earth the beds at top, for the immediate reception of the ſeeds and plants, and garden mats to cover the glaſſes of nights and bad weather, and for giving occaſional ſhade from the ſun.

First, *of Dung Hot-beds for general Hot-bed Work.*

That as before obſerved relative to general hot-beds, horſe ſtable dung is the principal material moſt eaſily and cheapeſt obtained in all places; and by hot beds of which may raiſe all the requiſite early crops in good perfection; and of which, at the proper ſeaſons for raiſing the crops intended, winter or ſpring, &c. ſhould provide a neceſſary quantity in preparation for making the hot-beds of the requiſite ſubſtance, either for a one, two, or three light frame, or for two or more ſuch frames in a range, or ſeparate, as may be required for different crops; to be made three feet or three and a half high for ſtrong beds, two and a half for moderate, and half a yard to two feet for ſlight hot-beds, for ſmall temporary crops of ſhort duration, as ſmall-ſallading; or to raiſe a few plants of the tranſplanting kinds for pricking out as cauliflowers, cabbages, lettuce, celery, capſicum, &c. or for hand-glaſſes, and oiled paper frames, may be from a yard to two feet depth in dung.

In providing this dung, prefer that which is moderately freſh, or become of a blackiſh hue, moiſt and abounding

abounding in a lively ſteamy heat, taking the long and ſhort moiſt litter, and dunging of the horſes together; and as it will now be unequal both in its parts and heating quality, it is adviſable, previous to forming it into a bed, to collect from the ſtable-yard dunghill the requiſite ſupply for one or more hot-beds in proportion as above, and fork it up in a mixed order into a large round heap, or long high ridge, if a large quantity, to remain a week or fortnight, or more, that it may ferment and prepare equally of a proper temperature of full heat; and as in which it will ſometimes aſſume a ſtrong degree of rank heat and ſcalding ſteam, it is eligible, in that caſe, in a few days or a week's time, to fork it over to the bottom, to paſs away the groſſeſt of the pernicious ſteam and redundant heat, mixing the parts well together, which will prepare it ſtill more effectually; and in that ſtate will diſcharge the rank noxious ſteam and violent burning quality peculiar to this kind of dung, and reduce the whole to a more moderate degree; that as when made into a bed it will not be ſo liable to burn as if made without this previous preparation, acquire a more kindly mild growing heat, and continue longer in a regular neceſſary warmth agreeably to the growth of the intended ſeed or plants, &c. for hot-beds made of this dung always heat violently ſtrong at firſt, more eſpecially if not previouſly prepared as above, that without being thus moderated, it would ſometimes in ſtrong beds be ſo violent as to burn the earth, ſeeds and plants; and even ſometimes when the dung is ever ſo well prepared before-hand, there is danger of the hot-bed burning by over-heat, if of ſtrong ſubſtance, and on which conſideration particular attention is neceſſary in the early ſtate of ſubſtantial beds, a yard high, or more, for two or more three light frames in a range, not to earth, ſow, or plant too ſoon, probably a week, ten, twelve days, or a fortnight after making; for if it only burns the earth, the plants ſeldom proſper well after, as hereafter explained.

Sometimes in providing the above kind of dung for hot-beds, if the heat or ſtrength is much exhauſted by long lying in the dunghill, or the litter, &c. has been

burned

burned by its own former heat, and is dry and unſubſtantial, and that no other or a proper ſufficiency can be obtained, collect the beſt, and, if poſſible, a quantity of pit-coal aſhes, forking the dung up in an heap, ſpread aſhes among it from time to time, as thrown up, and alſo water it in the ſame order, the aſhes and moiſture will revive the decayed heat, and bring it to a tolerable temperature, proper for a hot-bed.

But in freſh dung of a good moiſt heat, the addition of aſhes, &c. is not requiſite, as ſometimes practiſed, it being apt to promote its heating too violently of a ſtrong burning nature.

The above kind of hot-beds of horſe ſtable dung are the moſt commonly employed in kitchen gardens for general forcing or raiſing tender plants of cucumbers, melons, &c. and alſo in forcing hardy kinds to early perfection, as ſuch dung can generally be more readily procured in moſt places than tanners bark for hot-beds, and if neceſſary to purchaſe what may be required, is obtained at a conſiderably leſs expence than the bark, which alſo in ſome places is many miles diſtant; therefore, horſe-dung being the moſt convenient to be had in all places, and many have it plentifully from their own ſtables, it may be uſed ſucceſsfully for general hot-beds, and is the only ſort of dung proper for that purpoſe, eligible to produce a ſufficient heat, the ſtrawey litter of the horſe-ſtalls and dung together, rendered wet by the ſtaling of the animals, which, and the dung thereof, being of a peculiar ſtrong hot nature, as before remarked, that when the whole is collected into an heap or bed, it ferments, and becomes productive of a ſubſtantial and effectual durable heat, moderating gradually after made into a bed from a fierce to a mild degree, communicating a lively but kindly growing heat to the earth and roots of the plants, as well as warms the internal air within the frames to a ſufficiently high temperature in winter and ſpring, equal to the warm climates of which the tender plants are natives, or to that of our hot ſummers, and is thereby capable of forcing or raiſing tender and hardy plants to a ſtate of free growth in early ſeaſons to yield their produce or attain perfection

ſome

ſome weeks or months before their natural ſeaſon in the open ground, as formerly intimated.

But obſerve, that as theſe hot-beds will decline in their heat in three, four, or five weeks, it is proper for beds having crops of any conſiderable continuance, to revive their decaying heat by applying a lining of hot dung of the ſame kind, above explained, to the ſides of the bed from bottom to top, fifteen inches or half a yard wide; therefore, there ſhould be additional ſupplies provided and prepared in readineſs for that purpoſe, which ſometimes will be required in renewal two or three times during the principal growth of the particular early crops.

However, with regard to tanner's bark hot-beds, where that material can be conveniently obtained from tan-yards within a moderate diſtance at an eaſy expence, is preferably eligible for hot-beds in forcing ſome particular plants, ſuch as for early ſtrawberries, kidney-beans, peas, &c. and is alſo very proper for melons, as it not only heats more moderately from the beginning than horſe dung hot-beds, but continues of conſiderably longer duration in an effectual moderate growing ſtate, without the additional aſſiſtance of lining or augmentation, at leaſt not for two or three months, when if the plants are in pots, theſe being taken up and the bark forked over to the bottom, renews the heat, or more effectually if about one third of freſh tan is added, forking the old and new together; but it muſt be obſerved, in theſe bark hot-beds, a pit or caſe muſt be formed of brick work, or poſt and planking, a yard or four feet deep, ſunk one third or half way in the earth, in which to make them; for the ſhort looſe texture of the bark does not admit of being made into a bed without that convenience to confine it to the proper form.

Or hot-beds may be made of dung and bark together, or dung below and bark above.

All hot-beds either of dung or tanner's bark ſhould be made in warm dry ſheltered ſituations in the full ſun, eſpecially for early work in winter and ſpring; and if the compartment allotted for this purpoſe, commonly

monly called the melon-ground, is fenced either with a wall, paling, or reed hedge, &c. it will be of great advantage in breaking off cutting blasts and tempestuous winds, the fences six or seven feet high in the back or north side, the ends sloping to only five in front, especially in small melon-grounds, that they may not intercept the sun from the beds.

The hot-beds should always range longways east and west, fronting the south sun, and where they may enjoy the sun at all times from its rising to setting, which is of great importance in early hot-beds, particularly for the benefit of the plants; and, as before suggested, it is not proper to make long deep trenches in which to make the beds, especially those of winter and spring, as that would both deprive you of the opportunity of lining them completely to the bottom with hot dung, when the original heat of the beds declines, and water may be apt to collect therein and chill the bottom heat of the bed considerably; and on which considerations I should advise to make all early beds mostly on level ground, or not more than six inch trenches, just for the first formation of the bed; but if wettish ground, make no trench at all; and in which rather have the place for the hot-beds a little elevated, to throw the water off from the bottom of the bed; and besides, as I before hinted, early hot-beds made in winter and spring till May, both for frames and hand-glasses, &c. mostly require the declining heat augmented by applications of linings of hot dung to the sides, it is of much advantage to have the opportunity of lining them quite from, or within a little of the bottom, for all parts of the bed to partake equally of the benefit; but in late hot-beds, to be made in the beginning or any time of May and beginning of June, for cucumbers, under hand glasses and oiled-paper frames, as they will not want lining, may either be made in trenches half a yard deep, and three or four feet wide, in any of the quarters of the kitchen garden, especially for large quantities in a long range, as in market grounds about London, &c. to have the advantage of using the earth digged out in forming the trenches ready at hand for earthing the beds, without wheeling it from a distance;

diſtance; or for ſmall or moderate ſupply, they may either be made in a trench as above, or in a ſhallow one of ſix inches to a foot depth, and four wide, or wholly on level ground that width, where only of ſmall extent, not requiring conſiderable portions of earth fetched for earthing them.

Hot-beds ſhould be furniſhed with garden-frames and lights placed at top, or ſome with hand-glaſſes, oiled paper frames, or ſometimes with only garden mats; the early beds, made in winter and ſpring till April or May, ſhould always have frames and lights; late hot-beds, made in April, May, and beginning of June, may either for general beds have the plants defended with hand-glaſſes, or occaſionally with frames, &c. as may be convenient; or in May and June with oiled paper frames; or, to raiſe ſome crops of hardy plants a little early, in want of frames or hand-glaſſes, may have the hot-beds arched over with hoops or rods, and defended of nights and bad weather with mats, ſuch as ſmall ſallading, radiſhes, carrots, lettuce, cauliflowers, celery, cabbage, kidney-beans, peas, potatoes, mazagan beans, &c. the hot-beds not made till February or March, &c. but even for theſe, frames and lights, when in ſufficiency, are conſiderably more effectual.

The proper dimenſions for general dung hot-beds for frames is four feet or four and a half wide, in proportion to the width of the frames with which they are to be covered or defended, and the length of one, two, three, or ſeveral ſuch frames and glaſſes in a range, three feet and a half to a yard, two feet, or half a yard high, according to the ſeaſon, earlier or later, and the different ſorts of plants to be raiſed, tenderer or hardier, or of longer or ſhorter duration or continuance in growth, as explained under their proper heads; and the beds to be earthed at top within the frames, from ſix, eight, or ten, to twelve or fifteen inches, in proportion to the ſubſtance of the bed, moderate or ſtrong, and as the different ſeeds or plants require, as hinted in the culture of the reſpective articles; and for hand-glaſs and oiled paper, the hot-beds, if made wholly above ground, may be four feet, or four and a half wide, to contain a

proper

proper width of earth at top; or if made in a deep trench, before explained, to admit of widening the ſides with earth, three feet to three and a half width in dung may be ſufficient; and in both of which the length may be at pleaſure, for ten, twenty, or thirty hand-glaſſes, or more, placed at a yard diſtance, or for oiled paper frames, placed lengthways, cloſe to one another; and if either for frames or hand-glaſſes, &c. two or more ranges of hot-beds are to be made parallel, or one beſide the other; they ſhould be five or ſix to eight or ten feet diſtance; though in the market grounds about London, the hand-glaſs hot-beds for cucumbers or melons, made in May or beginning of June, between wide rows of early hand-glaſs cauliflowers, are commonly ten feet aſunder.

The proper GARDEN-FRAMES for general hot-beds are of three ſorts, one-light, two-light, and three-light frames; but the two former are only principally for temporary occaſions, for ſeed and raiſing hot-beds, in which to ſow the ſeed and forward the plants of ſome particular ſorts, as cucumbers, melons, &c. a little in growth for tranſplanting into large hot-beds for three-light frames, where they are to continue; or occaſionally in ſmall gardens a one-light frame ſerves for a raiſing-bed, and a two or three-light for final tranſplanting; but the three-light frames are for general hot-bed work; all which different ſorts of frames being conſtructed with inch and a half deal, are commonly made four feet or four and a half wide, by three and a half or four feet for a one-light, ſeven feet long for a two-light, and ten and a half long for a three-light frame, fourteen to eighteen inches deep behind, by nine to twelve in the front, having the ends in proportion; and ſhould be well painted blue or lead colour, in oil, to preſerve them longer ſound; the ſhallow frames being moſt eligible for early forcing, to have the plants nearer the glaſſes, to enjoy the greater benefit from the power of the ſun in winter and early in ſpring, and not ſo liable to draw weak at that ſeaſon as in deeper frames, ſuch as for ſmall ſallading, radiſhes, carrots, and forcing lettuce

lettuce to early cabbaging in winter, &c. as alſo for earlieſt cucumbers, ridged out in January, or early in February; but in a more advanced ſeaſon for early cucumbers, melons, aſparagus, kidney-beans, ſtrawberries, &c. the deeper frames are the moſt eligible; and the lights or glaſſes for the frames may either have the panes of glaſs laid in lead well cemented, or in thin bars of wood well puttied, the panes lapping over one another half an inch, either puttied, or left open at the lappings to diſcharge the condenſed moiſture from the ſteam of the bed lodging on the inſide of the glaſſes without dropping on the plants.

HAND GLASSES for hot beds are of two ſorts, leaded ſquares, and bell glaſſes; the former are cheapeſt, and when any panes are broke can be readily mended; but the bells are generally the moſt effectual. See *Hand-glaſſes*.

OILED PAPER FRAMES are uſed principally for late melon hot-beds made in April or May, the plants firſt ridged out under hand glaſſes till June, then theſe removed and the paper frames placed over the beds finally to remain; alſo occaſionally for cucumbers. See *Melons* and *Cucumbers*.

With regard to EARTH for hot-beds, any good rich light garden mold will be eligible for moſt plants; though for cucumbers and melons in particular, ſome rich light garden mold, freſh ſurface loam from a common or paſture field, and well rotted dung, all blended together in a compoſt heap for ſeveral months, expoſed to the ſun and weather to enrich and improve its quality, and frequently turned over, and the parts well mixed, will be a favourite ſoil for theſe plants, though theſe will alſo ſucceed in common rich light garden earth; or for melons, a principal ſupply of good moderately light ſurface loam, turf and all, a quantity of rotted dung, and a portion of rich garden mold, all blended in an heap or long ridge for ſeveral months in the full air and ſun, well turned over occaſionally as above, is excellent for theſe plants in particular, whereby to obtain good crops of large fine fruit; but for general hot-beds, may have ſome beſt rich garden earth always ready prepared

prepared in a heap or ridge, or compoſt heaps of rich earth, dung, and a portion of loam, prepared in ſummer, autumn, or beginning of winter, in readineſs againſt the hot-bed ſeaſon; and for early cucumbers and melons in particular in winter and early ſpring forcing, it would be of beneficial advantage for the immediate reception of the ſeed and young plants, to have a quantity of earth laid under ſome covered ſhed defended from the rain, &c. but open in front to the full air, to be ready of a dry temperament for that purpoſe, which is of material importance in theſe tender plants at an early ſeaſon.

GARDEN MATS are very neceſſary in hot-bed work, wherewith to cover the glaſſes of the frames, or hand-glaſſes, &c. every night, and rigorous froſts, &c. in winter and ſpring hot-beds till May or June; and alſo for giving occaſional ſhade to particular plants, as cucumbers and melons, both at firſt planting out till they take root, and occaſionally afterwards in hot ſun ſhining days, when the ſun is powerful through the glaſſes to make the leaves ſhrink or flag: the beſt ſorts of mats for this purpoſe are the large Ruſſia mats, ſold at moſt of the nurſeries and ſeed ſhops, at nine, to ten or twelve ſhillings per dozen, or in proportion for ſmaller or larger quantities.

IN MAKING DUNG HOT-BEDS, having the dung properly prepared, as already adviſed, mark out in the ground the intended bed the proper width of the frames, or for hand-glaſſes, &c. by placing a ſtout ſtake for each corner, wheeling in the dung, laying it by the ſide, and, beginning at one end, proceed to form the bed, by forking in the dung, long and ſhort together, ſpreading it the proper width, work up the corners and ſides full and firm in an upright manner, filling up the middle equally with the ſides as you go on; carrying it thus along the intended length for one, two, or more frames, &c. all an equal width, beating down the dung with the fork from time to time, continuing in this order advancing with both ſides and ends regularly upright, and the middle completely full from ſide to ſide, the whole carried up thus to the height required for a

ſtrong

ſtrong or moderate bed, generally three feet and a half for a ſubſtantial hot-bed in early forcing in winter, ſpring, &c. for early cucumbers, melons, aſparagus, ſtrawberries; or two feet and a half for a moderate bed in the ſame ſeaſons for kidney-beans, radiſhes, carrots, large lettuces for winter cabbaging, potatoes, peas, capſicums, love-apples, &c. and half a yard to two feet for ſlighter hot-beds for ſmall ſallading, early ſeedling-lettuce, cauliflowers, celery, a few early ſeedling cabbages, and red cabbage, when the winter ſtanding plants in the open ground are cut off by froſt, &c. early purſlane, coriander, mint, tarragon; alſo hot-beds of that latter ſubſtance for occaſional pricking-out beds, in forwarding particular tranſplanting kinds of young ſeedlings, raiſed as above, as lettuce, cauliflowers, celery, &c. more fully explained under their different articles; and in all of which beds, made of the above different ſizes in height, as required, for one, two, or ſeveral frames in a range, or hand-glaſſes, &c. make an allowance in their depth of dung for ſettling half a foot or more in a week or fortnight, finiſhing the top level and firm to the full width, rather a little higher in the north ſide, not exceeding one, two, or three inches, with a gradual ſlope to the front, ſhovelling up all the ſhort dung at laſt remaining on the ground round the ſides, and lay it at top along the middle, and afterwards ſpread regular in a level order, and with a ſpade or dung-fork beat in any inequalities of the ſides and ends in a cloſe regular manner in an upright poſition, and ſmooth the top ſurface even for the reception of the earth, in which to ſow or plant.

Thus the above being the principal particulars to be obſerved relative to the work of making general dung hot-beds, except in one particular inſtance, namely, for muſhrooms, and which, for raiſing theſe plants, is always made with both ſides ſloping in form of the roof of an houſe, four or five feet wide at bottom, narrowing it upwards equally from each ſide till they meet at top in a ſharp ridge, three and a half to four or five feet high; and in the ſloping ſides of this peculiar kind of hot-bed, when reduced, however, to a very moderate warmth,

warmth, the muſhroom-ſpawn is planted for the production of the muſhrooms, no frames or glaſſes being required, only a thick covering of ſtraw. See *Muſhrooms.*

However, in regard to the common general hot-beds for frames, hand-glaſſes, &c. above explained, it is proper, as ſoon as the beds are made, to ſet on the frames and lights, &c. both to defend the beds from the weather, and to draw up the heat ſooner, and forward it in ſtrong beds, more effectually in moderating from the firſt fierce heat to an eligible moderate temperature for earthing, ſowing, planting, &c. obſerve, in which, to tilt up the lights behind, an inch or two, to give vent to the rank hot ſteam ariſing from the heat of the dung, that the vehement burning quality thereof, which often occurs in ſubſtantial beds, may thereby paſs off in that evaporation; for generally beds of ſtrong ſubſtance being productive of a great firſt heat, tending to a burning nature, that if earthed in too ſoon, to confine the hot ſteam, it might occaſion its burning both the earth, ſeeds, plants, &c.

The EARTHING therefore of ſtrong hot-beds for cucumbers, melons, &c. of two feet and a half to three and a half, or more thickneſs in dung, for one, two, or ſeveral frames, lengthways, may require a week or a fortnight, to moderate before it is proper to earth, ſow, or plant; though a bed for one or two frames will ſooner moderate than one of a greater ſubſtance in length; and beds made of a more moderate ſize, only about two feet, or little more, high in dung, ſeldom heat ſo violent, and the great heat ſooner abates; or if but of a ſhort length for one or two frames, it occaſionally, as ſoon as ſettled a little, and the heat come up, admits of immediate earthing, ready, when the earth is warm, for ſowing and planting without much danger of burning; and moſtly in ſlender beds, of half a yard to two feet, they may either at once, or when ſettled a day or two, be earthed all over, and ſowed or planted with what is intended; and even ſometimes ſtronger beds, from two feet and a half to a yard or more high, heat ſo moderately, as in a few days, when ſettled and the heat aſcends,

aſcends, to admit of earthing, &c. likewiſe hand-glaſs hot-beds, as not being wholly confined above with frames, but open between the glaſſes for the great heat to evaporate, may alſo be earthed generally or occaſionally, either as ſoon as made, or after having ſettled a few days, and commenced a good heat; being, however, cautious in hot-beds in general that are of any conſiderable ſubſtance, to examine the temperature of the firſt heat, previous to earthing, ſowing, and planting; though in aſparagus hot-beds in particular, the frames not being put on at firſt, are commonly earthed and planted as ſoon as made, as the heat in its violent ſtate not being confined with the frames and glaſſes, but wholly open for a time to the full air, till the heat is become very moderate, there is the leſs danger of burning; and in a week, fortnight, or more, according to the ſubſtance in length of the bed, the frame or frames are then to be put on, likewiſe the glaſſes; alſo in other hot-beds intended for hand-glaſſes, placed thereon a yard aſunder in a range along the middle, the great ſteam and heat having greater liberty to evaporate between and on each ſide the ſaid glaſſes, the bed does not require that particular precaution in earthing in ſtrong beds, as thoſe wholly covered with frames and lights, as above remarked.

The above obſervations for earthing the frame hot-beds, are deſigned to convey general hints, which by practice will be more readily comprehended.

And in earthing ſome beds for particular plants, as for ridging out or planting early cucumbers and melons, are at firſt only earthed in part their full thickneſs, by laying a ſmall hill of earth under the middle of each light, eight to ten or twelve inches thick, the other parts only two or three inches, till after the heat is become very moderate; and in the hills of earth, when warm, the ſeeds and plants are inſerted, thereby gain time, while the great heat is evaporating in ſteam between the hills of earth from the ſhallow earthed parts of the bed, which afterwards muſt be earthed up by degrees equal with the hills.

In moſt other hot-beds the earthing is neceſſary to be laid at once the full depth, from ſix to eight or ten inches,

inches, with the precautions as above, and when warm, to ſow or plant what is intended therein.

AFTER MAKING the hot-beds, and they are earthed, ſowed, and planted, the lights or glaſſes of the frames are to be continued on conſtantly night and day, eſpecially all the early ſeaſons, in moſt plants; the principal after-care is to cover the glaſſes every night with garden mats or dry long ſtrawey litter, to give air in fine days, and occaſional waterings, and ſometimes occaſional ſhade from the hot ſun, and of lining the ſides of the beds, when the original heat declines, with hot dung, to renew and ſupport a conſtant regular heat in the principal hot-beds.

COVERING the glaſſes of hot-beds is neceſſary to be performed every evening an hour or more before dark in winter and early in ſpring, and uncovered in the morning about ſun riſing, or ſhortly after, eſpecially in mild weather, that the plants may enjoy all poſſible benefit of the light and ſun in ſhort days; the covering being performed either with garden mats ſpread over the glaſſes, from one to two or three thick, according as the heat of the bed is ſtrong or moderate, or with long litter a proportionable thickneſs; and in advanced ſeaſons of ſpring and ſummer, till the end of May or beginning or middle of June, cover up about ſun-ſet, or a little before, and uncovered ſhortly after ſun-riſing in mild ſunny mornings, or by ſix, ſeven, or eight o'clock, according to the temperature of the bed and weather, or as ſunny or cloudy, or by five or ſix in ſummer; but may be entirely diſcontinued in June in ſuch beds as are then in cultivation, as in cucumbers, melons, &c.

FRESH air to hot-beds muſt be admitted, and to give vent to the ſteam in the bed, to ſtrengthen the plants and prevent burning, which will be neceſſary every favourable day more or leſs, or even in froſty weather, when a lively heat in the bed, by tilting up the lights behind, from half an inch to an inch or two high, in proportion to the heat of the bed and temperature of the external air, or as the warmth or heat of the day encreaſes and decreaſes, generally from nine or ten o'clock

in winter to three or four, and earlier and later in proportion in ſpring and ſummer, always more freely in ſunny mild days than when cloudy, foggy, or ſharp froſts, &c. ſhutting the lights gradually cloſer towards afternoon, and quite cloſe before evening, unleſs there is a ſtrong heat and copious rank ſteam in the hot-bed, when give air and vent alſo occaſionally of nights in a ſmall degree, hanging a garden mat before the open or tilted part of the lights, to break off cutting winds; but in a mild heat keep the glaſſes moſtly cloſe every night.

The admiſſion of freſh air, as above, is moſt neceſſary both to ſtrengthen the plants, which otherwiſe would draw up weak and of a yellow ſickly ſtate, and alſo to give vent to the ſteam, to prevent burning the earth and roots, or ſteam-ſcalding the leaves, or in ſome ſorts from fogging, as ſmall ſallading coming up very thick.

WATERING TO HOT-BEDS will be neceſſary to moſt plants contained therein once, twice, or three times a week, according to the ſeaſon of the year and heat of the bed; always very moderate in winter and early in ſpring, once a week, or more or leſs, according as the earth becomes dry, principally in ſun-ſhining mild days of a forenoon, generally ſoft water; and for tender plants, as cucumbers, melons, &c. in early cold ſeaſons, have the chill taken off the water, either by ſtanding in the bed a few hours in a ſmall watering pot or bottles, or for watering larger ſupplies may warm ſome water and pour into more, juſt only to take off the ſharp cold; but in advanced ſeaſons in ſpring, &c. this is not neceſſary; repeat the waterings according as the earth dries conſiderably; never water too freely to make the earth very wet, only moderately moiſt; but in warm weather water more freely in a morning or afternoon, two or three times a week, as there may ſeem occaſion; and ſometimes in watering in warm ſunny days, cucumbers, melons, &c. ſhut down the glaſſes occaſionally, and ſpread a mat over for half an hour or an hour, it will draw up a fine dewy heat that will prove very beneficial to the plants; and beſides, this is

ſometimes neceſſary in hot ſun-ſhining weather, to prevent the ſun ſcorching the leaves through the glaſſes where the water ſtands upon them in drops; having generally ſmall watering pots for early watering, in winter and ſpring, in the more tender plants in their young ſtate, ſuch as cucumbers and melons, &c.

LINING of HOT BEDS on the ſides with hot dung when the heat declines, is a very neceſſary buſineſs to all principal beds in winter and ſpring till May, according as they decreaſe in their original heat, in three, four, to five or ſix weeks after making, and occaſionally afterwards in their more advanced ſtate; all which be careful to obſerve, and renew the heat in an eligible time, having for this purpoſe proper hot dung, prepared as adviſed in making the beds, and apply it cloſe to the ſides of the bed, fifteen to eighteen inches wide, and carried up by degrees three or four inches higher than the dung of the bed, to allow for ſettling ſo much, generally lining the back part firſt, the others in a week or ten days after, or both at once, if the heat is conſiderably decayed, ſeldom raiſing the linings but little higher than the dung of the bed, leſt it burn the earth within the frame, or ſteam-ſcald the plants, eſpecially cucumbers and melons; for the rank ſteam riſing immediately from the dung either in the bed or linings, without previouſly paſſing through a body of earth, to take off the rancid quality, is very deſtructive of thoſe tender plants particularly, and pernicious to all others; and to guard againſt which in the linings, it is adviſeable to cover the top with two or three inches of earth, ſloping a little outward.

Theſe linings will ſoon communicate an enlivening heat to the declining beds, and will ſupport them in a good ſtate two or three weeks, or a month longer; and when it again declines, remove the back lining, having ſome freſh dung, fork it up with the beſt of the old, applying it to the bed as before; afterwards, in a few days or a week, or more, renew the front and end linings; and thus continue ſupporting the heat according as it decreaſes, to keep it to a proper temperature regularly from the beginning to its advanced ſtate, eſpecially all beds in

which the crops are of any conſiderable continuance, as cucumbers, melons, aſparagus, ſtrawberries, kidney-beans, radiſhes, carrots, potatoes, peas, &c.

But obſerve to examine occaſionally that the lining is not ſo ſtrong in heat as to communicate a burning quality to the bed, earth, or roots of the plants therein, which if it caſually happens, as frequently is the caſe in ſtrong linings, inſtantly remove the lining half way down, or more, for a few days, then apply it again by degrees.

HAND-GLASS HOT-BEDS.—In making hot-bed ridges for hand-glaſſes and oiled-paper lights, the middle or latter end of April, and in May, for cucumbers, melons, &c. that if deſigned to make them moſtly on the level ground, agreeable to former obſervations, to have the opportunity of lining, if neceſſary, quite from the bottom, they may be made four feet to four and a half wide, to have a good ſcope of top ſurface to contain a proper width of earth, and from two to three feet high, or more, length at pleaſure, the tops made level, and when of proper heat, agreeable to former hints, earth the top all over eight or ten inches thick, beating up each ſide firm with the ſpade, and a row of hand-glaſſes then placed along the middle, at three or four feet diſtance, for the plants or ſeed; or in another method, may be earthed as ſoon as made, laying the earth at firſt only in little hills the above depth, one for each glaſs, at the above mentioned diſtance, the intervals earthed only one or two inches for the preſent, but to be earthed up equal with the hills by degrees, according as the heat moderates; then, in either method, when the earth under the glaſſes is warmed by the heat of the bed, put in the plants, or in want of theſe, ſow ſeed; and if two or more ſuch ridges or beds are intended to be made beſide one another parallel, have them three or four to five or ſix feet aſunder, to admit of lining, if occaſion; or if only three or four feet diſtance, may fill up the ſpaces with warm dung, and earth at top equal with the beds, which will afford a larger ſcope for the roots and vine of the plants to extend; continuing the hand-glaſſes conſtantly over the plants, and admit air every warm day by tilting the ſouth ſide an inch or two,

but

but ſhut cloſe every night and when cold or unfavourable weather, and cover the glaſſes and whole bed every night with large mats till June, giving proper ſupplies of water, and neceſſary linings of hot dung to the ſides, if needful; and in June aforeſaid, when the weather is ſettled warm, and the plants have filled the glaſſes, theſe ſhould be raiſed upon three props about three or four inches, for the vine or runners of the plants to extend out each way along the ſurface of the bed; being careful in this to cover them of nights with mats when firſt turned out, till a little hardened to the full air. See *Cucumbers* and *Melons*.

Or in making late hot-bed ridges for hand glaſſes and oiled-paper frames in May and beginning of June, for cucumbers, &c. they may either be made on level ground two feet and a half to about a yard high, the beginning or middle of May; after that time two feet and a half to two feet at leaſt; or at that time, as linings will not be afterwards particularly neceſſary, they may be made in trenches half a yard deep, by three feet or three and a half wide, to have the earth of the trenches, if rich and good, for earthing the top and widening the ſides, eſpecially for a conſiderable range, to ſave time in bringing large ſupplies of earth from a more diſtant part of the ground; but for ſmaller or moderate beds, where the ſupply of earth required is inconſiderable, they may either be made in a trench or on the level ſurface; however, as at this advanced ſeaſon, the ground being dry and warm, the making theſe beds in trenches is eligible, ſo far, as that they being but moderate, two feet or two and a half depth in dung, not having the advantage of being cloſely defended above with frames, &c. that by being wholly incloſed at ſides and top with the trenches and top earth, confines the heat in longer duration; and which trenches for this purpoſe may, for the ſake of having a ſufficiency of good earth at hand, be made in any of the rich quarters of kitchen ground, or, as by the London market gardeners, made between wide rows of hand glaſs caul flowers, the glaſſes of which ſerve alſo for the cucumber ridges; marking out the trenches by line

and ſpade, about a yard to three feet and a half wide, and dig them half a yard deep, laying the earth equally to each ſide; then wheel in the dung, fork it up regular the full width of the trench, beating it down firm, and carry it up ſix inches to a foot or more above the level ground, to allow for ſettling; and as ſoon as thus made the whole length and depth, directly earth it at top ſix, eight, or ten inches thick, laying the remaining earth cloſe up to both ſides of that part of the bed above ground equal with the top earth, thereby covering every part of the dung, to confine the whole heat longer and more effectually in the proper place, and alſo to form a broad ſurface of ſix feet or more for the roots and runners of the plants to extend in a full ſpreading order; place a row of hand-glaſſes along the middle, a yard or four feet aſunder; and when the earth is warm, making it a little hollow under each glaſs, put in the plants, four cucumbers under each, and but two of melons, give water at planting, and ſhade with mats from the ſun till they will take good root and grow; and for the further culture, obſerve the ſame as for the hand-glaſs beds above. See alſo *Cucumbers*, &c.

Sometimes in making the above cucumber ridges or hot-beds in trenches, in May, &c. that where the ground is light, rich, and dry, and for large ranges, as in the market gardens about London, they, to ſave time, inſtead of digging the trenches fully at once, mark them out with line and ſpade the intended width of two feet and a half to a yard; dig out an opening at one end a yard in length, and the width of the trench, by half a yard or a large ſpade deep and the ſhovelling, then wheel ſome hot dung therein, forking it up regular and firm the proper width and depth, and then digging the trench along, turn the earth over this firſt courſe of dung, ſix, eight, or ten inches depth, and to each ſide; which done, have more dung wheeled in, joining it cloſe with the firſt, the ſame width and depth, continuing the digging over this as before; and in this manner proceed to the end, covering all the dung top and ſides with the earth, and make the top at laſt even,

and

and the ſides regular and ſtraight; the whole forming an equal ſurface of five or ſix feet wide, or more; placing the hand-glaſſes on directly as above explained, and put in the plants in the ſame order, or, in want of plants, ſow ſeed, giving the ſimilar culture as for the other hot-bed ridges for hand-glaſſes, &c.

Or for OILED-PAPER FRAMES, late hot-beds are made in the middle or latter end of April, and in May, principally for melons, or alſo occaſionally for cucumbers, as directed above for the hand-glaſs ridges, made either wholly above ground, four feet wide to a yard high, earthed at top, as before explained, or in trenches a yard or four feet wide, by two feet or two and a half depth in dung, the dung raiſed ſix to twelve inches or more above the common ſurface, as it will ſettle that much, ſo earthed at top either with that of the trenches, or, if for melons, with a prepared compoſt of loamy ſoil, &c. and then it would firſt be of moſt advantage to plant them under hand-glaſſes placed along the middle, a yard diſtance, to remain till June, when, being filled by the plants, remove them and place over the paper-frames, to continue night and day; or in default of hand-glaſſes to place over the plants at firſt, the bed as ſoon as earthed and planted, may be defended at once with the oiled-paper frames; which kind of frames both keeps off cold and rain, admits ſufficient light and power of the ſun, and at the ſame time affords an agreeable ſhade from its ſcorching rays in the heat of ſummer. See *Melons* and *Cucumbers*.

II. *Of Tanner's Bark Hot-beds, and Bark pits, &c.*

TANNER'S BARK HOT BEDS, made in proper pits or caſes, four to five or ſix feet wide, and a yard to three feet and a half thick, in winter or ſpring, are very effectual in raiſing ſeveral early crops, in great perfection, as ſtrawberries, kidney-beans, peas, mazagan-beans, &c. alſo for melons in a ſeparate bed.

To form this kind of hot beds, a pit or caſe ſhould be conſtructed, either with brick-work or poſt and planking, four feet to five or ſix wide, four feet and a half deep in front, to five or ſix feet behind, both ends correſpond-

ing, ſunk but one third or not above half way in the ground, the length at pleaſure, from ten or twelve to twenty or thirty feet or more, the top framed to receive ſliding ſaſh lights; and which pit or caſe admits of making the bark-bed a yard or three feet and a half depth, with an allowance of a proper depth of earth at top of the bark; or if plants in pots, as kidney-beans, ſtrawberries, &c. no earth is required, but the pots plunged immediately into the bark-bed, which may be made in January, February, or March, when may be put in ſtrawberries, kidney-beans, peas, mazagan-beans; alſo pots or boxes of ſmall ſallad, mint roots, tarragon; and in a ſeparate bed may have melons as above intimated; the bark will furniſh an effectual and kindly growing heat for two or three months; obſerve the culture as hereafter.

This ſort of hot-bed cannot, like thoſe of dung, be formed without a pit or caſe as above, on account of the ſhort looſe nature of bark; and which, as for other hot-beds, ſhould range lengthways Eaſt and Weſt, the front full to the South, in a ſituation fully expoſed to the whole day's ſun.

But to have the moſt effectual pit for bark-beds, to have alſo the occaſional aſſiſtance of fire heat in cold weather, it ſhould be conſtructed with brick-work walls, forming the pit the length as above, ſix or ſeven feet wide, by four or five feet depth in front, and ſix or ſeven behind, in which to admit of having flues above the bark bed for fire heat proceeding from a furnace below on the outſide behind or at one end, with the top framed for the reception of ſliding glaſſes; and this pit being furniſhed with a bark-bed in January, February, or March, a yard or three feet and a half depth in bark, ſix or eight inches of earth at top, may ſow or plant kidney beans, ſtrawberries, peas, melons, &c. or kidney beans, or ſtrawberries in pots may be plunged in the bark without any earth thereon; and either of which the bark-bed will afford a fine moderate growing heat of long continuance, without ſtrong ſteam like dung-beds, obſerving to admit air in fine days, by ſhoving down or tilting the glaſſes behind an inch or two or more according

to

to the temperature of the weather, but ſhut cloſe toward evening, or when cold or cloudy, and kept cloſe all night; cover the glaſſes every night with mats; and when cold weather or ſevere froſts, or when the bed declines in heat, may make occaſional moderate fires to warm the flues to diffuſe an additional internal heat, giving neceſſary waterings once, twice, or three times a week, according as the ſeaſon is earlier or more advanced, and that of the temperature of the bed, and as the weather is leſs or more warm in ſpring and early part of ſummer, while the bed continues in cultivation.

Or to form a more capacious and convenient pit for a bark hot-bed in which to raiſe different early articles, may have it eight or ten feet wide or more; four, five, or ſix feet high in the front, the lower half being brick-work, and the upper part glaſs ſaſhes, to ſlide beſide one another, with a continued wall behind ſeven or eight feet high, and both ends formed in the manner of the front, forming a door for entrance at one end; a raiſed flue, for fire, carried along the upper part of the front and end walls within, and in two or three returns along the back; in the middle internal bottom ſpace, have the bark-pit formed five or ſix feet wide, with a ſurrounding thin brick-wall, three and a half deep for the bark-bed, not ſunk above one third or half way at moſt in the ground; and have a walk or alley behind between the pit and the back wall; or if the building is of a more capacious width, may have the walk continued all round; having ſliding upright ſaſh-lights in front and both ends, and ſloping glaſſes at top in two tiers to draw up and down; and in which, having the pit filled with bark in January or February, may conveniently raiſe kidney-beans and ſtrawberries in pots both plunged in the bark-bed, and placed upon the tops of the flues, or upon ſhelves near the glaſſes; alſo pots of cucumbers, peas, mazagan-beans, ſmall ſallading, mint, &c. and in cold weather of nights, or ſevere froſts, or when the heat of the bed decays, make moderate fires, to aſſiſt the heat of the internal air; obſerving the other parts of culture as above intimated; the bed will continue a long regular heat, and

forward the different crops moſt agreeably to perfection at an early ſeaſon.

But to raiſe melons in bark-beds it is proper to allot them a ſeparate bed in a diſtinct pit, according to the firſt or ſecond directions above, made about the beginning or any time in February, &c. earthed with a good loamy earth, ten to twelve inches thick; and plants previouſly raiſed in a common dung hot-bed till in the rough leaves two or three inches broad; then having the bark-bed ready in February or March, tranſplant them therein, obſerving the general culture as directed under the article *Melon*.

Or about March, having a quantity of waſte bark of a hot-houſe, or other forcing compartment, and with which form a bark-bed in one of the common pits firſt deſcribed of poſt or planking, or brick-work; and having ſome melon plants raiſed as above mentioned, plant them immediately into the bark, as it will aſſume but a moderate heat, they will grow freely, and the bark continuing a ſlow mild heat, will forward the plants in a regular effectual growth, to produce good crops of melons.

Thus far obſerved relative to the utility of bark hot-beds, and hints of the methods of making, and eſſentials of their general culture; it will be proper to give ſome intimations of the proper ſort of bark and preparation for the beds.

The bark for this purpoſe is obtained at the tan-yards, being the bark of the oak-tree, cut and ground ſmall, that it may more freely impart its peculiar property for tanning of hides in the tan vats of liquor; and, after being uſed therein ſeveral months, and thrown out, becomes proper for bark hot-beds; and for which purpoſe the tanners ſell it to the gardeners, generally by the buſhel, or load, which, in the neighbourhood of London, about Bermondſey, Grange, Long-lane, and places adjacent in the Borough of Southwark, is ſold at about three half crowns per load of ſixty buſhels, or in proportion; obſerving to chuſe that which is moderately freſh, not too wet or dungy, and commonly prefer that of the middle ſize to the larger and very

very ſmalleſt bark, and when brought home, if wet, throw it together in a heap or ridge to drain a few days, then ſpread it out in a dry place in the ſun, or if only moderately wet ſpread it out at once for a day or two, but if of a dry temperature it may be immediately uſed for making the bark-bed; having, for this buſineſs, either a proper bark-fork of four or five tines, or a common dung fork with the tines moderately cloſe, and with which throw the bark into the allotted pit, or in baſkets to carry therein; where fork it up regular, forming it into a bed the width of the pit, and a yard or three feet and a half thick, or a little more to allow for ſettling.

It will thus gradually ferment to a proper heat in a week, or ten days, or a fortnight, or probably in leſs time; but will ſometimes heat fiercely at firſt, which muſt be obſerved by having a long ſtick or two thruſt down into the bark: and when by drawing up the ſticks, feeling the lower parts, the heat diſcovers a moderate degree, then introduce the plants, &c. which you may deſign for forcing, agreeable to the foregoing obſervations.

A bark hot-bed will ſupport a good growing heat two months, or longer, and when the heat declines, and if the plants are in pots, theſe taken up, and the bark forked over to the bottom, renews the heat for a month or longer; or where theſe beds are required in long continuance for ſucceſſional crops in pots, as ſtrawberries, kidney-beans, &c. the bark bed in about ten or twelve weeks after making being much decreaſed and become earthy at top and ſides, throwing out the moſt earthy rotted part a foot deep, then fill up the pit with new tan, and fork up the old and new together to the bottom; the freſh bark together with ſtirring up the whole will enliven the heat of the old, and the bed will continue a freſh heat two months longer or more.

Or in hot-houſes, where a conſtant bark-bed heat is required, that by adding freſh bark as above, and forking over once in three months, the bed will continue a growing heat for a year; after which the old bark being ſcreened or ſifted, the earthy part paſſed through

the ſcreen, &c. carried away, and the pit then filled with new tan upon the remaining old, and both forked up together, forms a new bed for a year to come with the above aſſiſtance.

Forcing Houſes, Hot Walls, and Hot Houſes, &c. for raiſing early Fruits and herbaceous Eſculents of the Kitchen Garden.

In FORCING HOUSES, forcing frames, and hot-walls worked by internal bark-bed heat, or that of actual fire communicated by flues, for raiſing early fruits, many ſorts of kitchen-garden eſculents may alſo be readily forced to early perfection in winter and ſpring; and likewiſe in a hot-houſe or pine-apple ſtove, where there is a conſtant bark-bed heat, and aſſiſted by fires in winter, ſeveral ſorts of deſirable plants, both tender and hardy kinds, may be forced to early maturity; ſuch as kidney-beans in great perfection, alſo ſtrawberries, and often cucumbers, in good production; likewiſe in fruit-forcing houſes as above may raiſe plenty of early ſtrawberries and kidney beans; alſo in the borders within the ſaid forcing apartments may ſow and plant peas and mazagan beans, and plant lettuces, ſtrawberries, &c.

But as a hot houſe is in conſtant cultivation all winter, &c. by bark and fire heat, ſeveral particular ſorts of eſculents may be introduced therein ſooner, and obtained earlier in perfection, than in the fruit-forcing houſes, &c. ſuch eſpecially as kidney-beans, ſtrawberries, cucumbers, &c.

For this purpoſe ſow ſome early kidney-beans, in middling pots of rich earth, three or four beans in each, an inch deep, in January, February, March, &c. and place them in the hot houſe towards the front glaſſes, or upon the top of the wall of the bark-bed; they will ſoon ſprout, when, and after they come up, give frequent moderate waterings, and the plants will grow freely, and produce good crops of young pods for gathering in March, April, &c. and by planting ſome in ſucceſſion every three weeks till April in ſmall pots placed cloſe in any convenient part of the hot-houſe, or forcing-houſe, &c. to be advancing in growth while the

the preceding crops are in production, then turned out of the ſmall pots with the ball of earth into larger, they will afford a regular production all ſpring till the natural ground crops bear in June. See *Kidney Beans.*

Strawberries, likewiſe, having two year old plants in pots advanced to a bearing growth, and in December, or more ſucceſsfully in January, or any time in February, placed in the hot-houſe towards the front near the glaſſes, or above upon ſhelves, or on the top of the front wall of the bark-bed, or ſome plunged therein; ſupplying them with water twice a week, or as required, they will produce ripe fruit early in the ſpring; and by having freſh ſupplies of plants, in pots, introduced every three weeks into the hot-houſe, forcing houſe, or hot walls, &c. they will furniſh a ſucceſſion of ripe ſtrawberries all ſpring till May, or till ſucceeded by the natural ground production in June. See *Strawberries.*

Alſo cucumbers in a hot-houſe having plants raiſed in December, January, or February, either in a common dung hot-bed under frames, &c. in ſmall pots, or in the bark-bed of the hot-houſe, till in the rough leaves, then turned out with balls of earth into larger pots, or long narrow boxes, trough-like, and placed near the top glaſſes behind, giving proper waterings, they will often bear plenty of good fruit; or plants may be raiſed by ſowing in pots or boxes in the hot houſe to remain where ſowed, and the ſhanks earthed up as required; obſerving in either method, when the plants put forth runners to place ſmall laths, rods, or thin ſl ps of wood for ſupport. See *Cucumbers.*

Likewiſe in the hot-houſe may occaſionally, In winter or ſpring, introduce pots of ſmall ſallad ſeeds, mint roots, &c. if required to raiſe a ſmall ſupply in haſte.

And in FRUIT-FORCING HOUSES, or hot walls, or other glaſſiaries by fire-heat or bark-beds, or both, commencing in the middle or end of January, or beginning of February, furniſhed with bark-beds, may in January, February and March, &c. have pots of ſtrawberries plunged therein, and placed in other parts near the glaſſes, as alſo in thoſe by fire only; likewiſe in either, or both, have ſome boxes or pots of kidney

beans,

beans, early peas, mazagan beans; and in capacious apartments of this kind furniſhed with internal borders, may have early dwarf peas ſowed therein, and mazagan beans, kidney beans, or ſtrawberries planted, alſo pots of theſe ſorts placed in different parts where convenient room; they will in either way ſucceed, and furniſh early productions, with but little trouble; only giving occaſional waterings; and to have a ſucceſſion, introduce pots of plants, or ſeeds, &c. at different times at a two or three weeks interval.

Alſo occaſionally in hot-houſes, or fruit-houſes, &c. when required to raiſe a few early dwarf peas and beans expeditiouſly for tranſplanting into common hot-beds, ſome may be ſowed thick in large pots, in December or January, &c. placed in the above, to raiſe the plants an inch high, then tranſplanted into hot-beds of dung or bark, under frames and glaſſes, in rows fifteen inches aſunder, by an inch in the row, the peas, and the beans two or three inches; likewiſe for raiſing a few young plants, of the ſame kind, ſpeedily to tranſplant into warm borders for early natural ground crops, ſome may be ſowed and raiſed in pots or boxes, as above, to an inch or two high, removing them in the pots into the full air every mild day, to harden them by degrees to bear it fully; then in January or February, or early in March, take them up with full roots and planted into a warm ſouth border, in a row cloſe along under the wall in a ſmall ſhallow drill, lengthways thereof, pricking in the plants the diſtance as above. See *Peas* and *Beans*.

Eſſential Particulars of the above-mentioned Forcing Houſes, and Hot Walls, and for early Fruits and herbaceous Eſculent Plants, &c.

The above-mentioned fruit-forcing houſes, hot walls, &c. for forcing fruit trees to early fruiting, and in which to raiſe early herbaceous eſculents occaſionally, are of different conſtructions, all with brick walls behind, and an incloſure of glaſs work before, upright in front and ſloping above, ſome formed to work principally by fire heat, others by fire and internal bark bed heat conjunctively, or ſometimes dung hot-beds covered with bark

bark at top a foot thick, and ſome by bark-bed heat only; that in their conſtruction ſhould all have a ſituation full to the ſouth and whole day's ſun, and range longways eaſt and weſt, and the front or glaſs work to the ſouth; the back-walls northward ſhould be eight to ten feet high or more, encloſed ſouthward and both ends with frame work of timber and moveable glaſs ſaſhes; the incloſure in ſome being capacious, from ten to fifteen or twenty feet wide, by twenty to thirty, forty, or fifty feet long or more; upright glaſſes in front ſix feet high, with ſloping glaſſes above extended in two or three tiers from the top of the uprights to that of the back wall; and furniſhed internally with brick-work flues for fire-heat, ranging horizontally along the ends and front wall in a ſingle funnel, continued to the back, there carried along in two or three returns over one another; or ſometimes extended along the middle lengthways, ſingly or in two returns, and quite detached; or if all the flues are detached from the walls two or three inches or more, they will impart a more effectual heat by diffuſing it equally from both ſides, but which, when attached cloſe to the walls, comes only from the front and great part is exhauſted behind; the fire-heat communicated from a furnace on the outſide at one end, or behind, or ſometimes at each end in a long glaſſiary, exceeding forty or fifty feet, in which two fire places will be neceſſary, each ſupplying its diſtinct range of flues; and in the internal middle ſpace at bottom, between the front and back flues, is in ſome formed a pit the whole length ſix or eight feet wide, and a yard deep, in which to have a bark-bed, or of hot dung below and bark at top; and fruit-trees planted in the front and back borders within.

Or ſometimes, in fire-heat forcing houſes, the internal bottom ſpace is wholly of rich ſubſtantial earth two ſpaces deep, wherein to plant the trees, &c. or at leaſt a border behind, and next the front; and ſome dwarf trees planted in the back border eight or ten feet aſunder, having a trellis work of poles or thin ſpars erected half a foot or more from the flues on which to train the trees in the wall-tree order, or others planted in front with tall or ſix feet ſtems to elevate the heads of branches

branches to be trained up under and parallel to the ſloping top glaſſes, to thin croſs bars, to enjoy the greater benefit of the ſun to forward and ripen the fruit; and with occaſionally dwarf trees planted in the middle ſpace, or ſome introduced therein in pots, as may be required; and in which border may have alſo ſtrawberries planted, a few peas, and mazagan beans, for early production; likewiſe may introduce ſtrawberries and kidney-beans, &c. in pots placed near the front glaſſes, &c. or any part withinſide where convenient for room.

But ſome fruit houſes as above for fire heat, furniſhed with a border behind or in front for fruit trees, have alſo internal bark-pits occupying the bottom middle ſpace almoſt the whole length by ſix or eight feet wide, three feet or three and a half deep, wherein to make a bark-bed, but the pit not ſunk more than one third or half way its depth, formed by a ſurrounding thin brick wall, having a narrow walk or alley continued round the walls of the pit; and ſome capaciouſly-wide houſes have two pits for bark-beds, ranging parallel lengthways, ſix feet wide, and two or three feet aſunder, with ſometimes a ſingle or double flue for fire heat between the pits; and which bark-bed both aſſiſts in giving additional conſtant heat for warming the internal air, in conjunction with moderate fires, or in ſome without fire heat, and are of great uſe in winter and ſpring, in which to plunge pots of ſtrawberries in ſucceſſional ſupplies, for plentiful crops of early fruit; as alſo to forward early kidney beans, peas, mazagan beans, cucumbers, or to have pots of ſalladings, &c. and ſuch other herbaceous eſculents in ſmall ſupplies, as are occaſionally forced in any kind of hot-beds, placed in pots in different parts of the houſe where room admits to partake of the advantage of the internal heat to forward them to early perfection.

Or ſometimes the internal pits formed as above have, inſtead of an entire bark-bed, a hot-bed of dung made therein, covered with eight, ten, or twelve inches of tanner's bark at top, in which to plunge pots of ſtrawberries, &c.

Other

Other fruit-forcing houſes are worked only by bark-bed heat, being eight, ten, or twelve feet wide, having an internal ſunk pit occupying the middle ſpace ſix or eight feet width, with a raiſed border behind, or in front, planted with fruit trees in the order before obſerved; and in which may alſo have pots of plants of any deſirable ſorts, as above, for forcing, ſuch as ſtrawberries, kidney-beans, cucumbers, flowers, &c. all which being introduced therein at the proper forcing-ſeaſon, January, February, March, and April, will produce their reſpective crops in good perfection at an early period.

Some fruit-forcing-frames worked entirely by bark-bed heat, are conſtructed wholly of wood above, in the back, front and ends, formed with thick deal board, five or ſix feet high behind, one or two feet in the front, both ends correſponding with the back and fore parts, ſix or eight feet wide, by ten feet long, to contain one tree, or in a continued length for two or ſeveral trees, at that diſtance, furniſhed with ſloping glaſſes at top, extending from the front to the back, where ſhould be one or more ſliding pannels above, to open occaſionally for entrance to perform the neceſſary culture in forking up or adding additional ſupplies of bark, when the heat of the bed wants renewal; having a proportionable ſpace below formed for a bark-pit, and this wholly filled with new tan a yard thick to the full width and length of the frame, to furniſh the bark-bed heat; the trees, peaches, nectarines, &c. being planted in a raiſed border on the outſide cloſe along the front, the heads are introduced within, and the branches trained up under the glaſſes, ſix or eight inches therefrom, to thin croſs battens of wood; and in this kind of forcing frame there may likewiſe be introduced, at the forcing ſeaſon, February and March, &c. pots of ſtrawberries and kidney-beans, &c. for early production.

But ſome hot-walls, fire-walls, or forcing frames, for raiſing early fruit, have the frame and glaſſiary work conſtructed of much narrower dimenſions than any of the foregoing; having a back wall ſix to eight or ten feet high, or more, full to the ſouth, length twenty

or

or thirty to fifty or a hundred feet, or more, as may be convenient, the width at bottom four or five to six feet, with the frame work and glaſſes wholly ſloping from a low front-work only one or two feet high, to the top of the back wall in one or two ranges one above the other, made to ſlide up and down, and with internal flues for fire heat, conducted either along near the front and ends, and continued occaſionally behind in one or two returns, or carried wholly only along the middle lengthways, elevated a little upon low arches, and entirely detached, that the heat may flow from both ſides and bottom; a border of earth next the back wall is furniſhed with full bearing trees of the deſirable ſorts, having the branches either trained immediately to the wall, if no flues are erected cloſe thereto, or if flues are ranged cloſe to the wall in two or more returns, the branches are trained to upright trellis work of thin battens of wood, at ſix or eight to ten or twelve inches from the wall of the flues; or ſometimes the trees are planted in a border forward next the front, and the branches trained up under and parallel to the glaſſes, at only ſix or eight inches diſtance, in order to have a greater benefit of the ſun to forward their early production; and which kind of fruit-walls are ſometimes of long extenſion, and contrived to force the trees, part one year, and part another, &c. in alternate order, by having the glaſſes moveable from one diviſion to another, or ſometimes the whole frame work; and by thus giving the trees one or two years reſpite or reſt from forcing, expoſing them fully to the open air during that time, they recover ſtrength in an eligible degree for future forcing again in their turn, after a year or two in this their natural growth; and in this ſort of forcing frame you may likewiſe, as in the others, occaſionally introduce ſuch eſculent plants as before mentioned, to forward them as required, by the benefit of their internal heat, from January or February till May.

Thus far concluding the general eſſential obſervations on the different fruit-tree forcing-frames, &c. in which alſo ſeveral deſirable herbaceous eſculent plants and curious flowers may be forwarded to early perfection, I ſhall next juſt remark the proper ſorts of fruit-trees

uſually

uſually forced, and principal relative particulars, with the proper ſeaſon to commence and continue the forcing, and general method of proceeding therein, both for the fruits and occaſional herbaceous plants, as may be required early.

The principal ſorts of fruit trees commonly planted in forcing-houſes, hot-walls, &c. are generally peaches, nectarines, apricots, plums, figs, cherries, grapes, all of which, when deſigned for this buſineſs, ſhould be ſuch as are trained principally in the wall tree order, and ſome in dwarf and half or full ſtandards, particularly cherries of the May duke kind; and before they are eligible to force, ſhould be all raiſed to a proper age and growth for immediate bearing, by either training them to that ſtate in the open ground in the nurſery, or elſewhere; or if planted young in the different forcing places, muſt remain fully expoſed to the open air, by keeping all the glaſſes off, and never forced by any kind of artificial heat till arrived at a good ſtate of bearing; though it is generally moſt adviſeable to have the whole fully trained to a proper growth for that purpoſe in the open ground, then tranſplanted into the allotted forcing apartments.

The beſt ſeaſon for planting them is in autumn at the decay of the leaves, end of October, or any time in November, or alſo in December, January, and beginning of February, in open weather, having them taken up with full roots, and planted in the order before intimated; or if convenient to remove any bearing trees in baſkets or large pots with full balls of earth about the roots wholly undiſturbed and planted therewith, ſo as not to have any check by removal, they may be forced the enſuing ſeaſon, January or February; but trees removed entirely out of the earth will hardly have taken ſufficient root to admit of forcing till the year after, keeping them fully expoſed till that time; or bearing trees in pots, having been planted therein a year or more, may be introduced for forcing, either in the pots, or the pots broken, not to diſturb the ball of earth, and planted with the ball entire, may be forced the ſame ſeaſon.

In

In planting the trees, that as the forcing apartments conſiſt of peach-houſes, cherry-houſes, vineries, &c.—they may either be planted accordingly in ſeparate houſes, &c. or, where there are not theſe different conveniences, ſome of each may be planted in the ſame forcing-houſes.

The PEACH-HOUSES, or peacheries, are deſigned principally for peach-trees, nectarines, apricots, figs, plums; generally all planted in the wall-tree order, behind or towards the glaſſes, and the branches trained ſpreading in a fanned manner like common wall-trees; or, in capacious houſes, having the whole bottom ſpace of good earth, ſome ſmall trees may alſo be placed therein, or trees in pots introduced occaſionally; and all of which pruned in ſummer and winter, as for the ſame ſorts in the natural ground.

CHERRY-HOUSES are commonly allotted principally for cherries, chiefly of the duke kinds, having generally the whole internal bottom ſpace a proper depth of good earth, and the trees planted therein, both in ſtandards with tall ſtems four to five or ſix feet, to elevate the heads near the glaſſes, planting the taller backwards, the others more toward the front, and alſo in the front part have dwarf ſtandards, and in rows between the taller trees; or ſome trained in the wall-tree and eſpalier order.

VINERIES, or vine-houſes, are allotted principally for vines of the choicer ſorts of grapes, and ſuch of the larger late kinds as will not ripen in this country without the aſſiſtance of artificial heat, either that of fire only, or more effectually of fire heat and bark-beds; and in all of which the vines planted internally both along the back-wall, and trained to upright trellis work, and next the front-glaſſes, and trained with ſingle ſtems upon the upright quartering till they reach the top; then branching out, are trained along under and parallel to the ſloping top glaſſes; or in wide houſes ſome may be planted in the middle ſpace, and trained upon the ſupporters: or ſometimes vines are planted in a border along the outſide of the front of the houſe,

houſe, the ſtems introduced each through a ſmall hole above, then run up under the top-glaſſes.

But vines may alſo be planted in aſſemblage in any of the other fruit forcing-houſes, either within, or in a border on the outſide of the front, and the ſtems admitted each through a hole, as mentioned above, and run up under the ſloping glaſſes or the ends, &c.

The SEASON TO BEGIN FORCING in the ſeveral above-mentioned fruit-houſes or forcing frames, both for forwarding the trees and any herbaceous kitchen garden plants, &c. is about the middle or latter end of January or beginning of February, that in thoſe having pits for bark-beds, theſe may be made a week or a fortnight before making the fires, and pots of ſtrawberries and other plants, &c. introduced; the fires in thoſe houſes furniſhed with flues may be made the end of January or beginning of February every evening of coal, peat, wood, &c. as the place moſt readily affords, ſupported in a moderate degree till nine or ten o'clock, to heat the flues properly to diffuſe a moderate kindly heat in the internal air all night; and in cold weather and ſevere froſts continue the fires alſo moderately in a morning, or ſometimes in the day-time, if no ſun and the froſt rigorous; but if ſunny, it probably will not be neceſſary after the morning, for the fire heat ſhould not be too ſtrong, only juſt to ſupport a conſtant good heat, not in ſo high a degree as that of a pine-apple ſtove, except for vines, which will thrive in a greater heat than any of the other fruits for forcing; ſo continuing the fires thus all the ſpring till the fruit ripens in April or May, &c. but always more moderate as the warm ſeaſon advances.

During the forcing admit air every mild day, and when ſunny, from nine or ten o'clock till three or four, according to the temperature of the weather, and as the heat of the day increaſes and decreaſes, ſhutting cloſe when very cold, and always every night.

Waterings will be neceſſary occaſionally to the borders and pots, &c. in which the trees are planted, ſometimes watering over the branches before and after they bloſſom, but never at that period till after the fruit is

ſet;

ſet; likewiſe water the ſtrawberries, kidney-beans, and other herbaceous kitchen garden plants that are introduced in the forcing cultivation in common with the fruit-trees.

In thoſe fruit-forcing-houſes, &c. worked by bark-bed heat only, the bark beds may be made therein the middle or latter end of January or beginning of February, and any pots of ſtrawberries, and other plants, formerly mentioned, may be plunged in the bark, or placed in other parts where convenient; the bark will continue a good heat two months, or more; but when it declines, take up the pots, if any, fork up the bark to the bottom, which will renew the heat; or if much decayed, add about one third or fourth part of new tan, and ſo fork up the old and new together, which will revive the heat more effectually of longer duration; giving air and water as above intimated.

Thus in any of theſe ſeveral forcing apartments the trees and other plants will advance in a regular growth to produce ripe cherries in March or April; ſtrawberries in February and March, April, May; peaches, nectarines, apricots, grapes, &c. in May and June.

According as the fruit ripens and gathered, generally remove all the glaſſes, to admit the full air to the trees all the ſummer and till the next forcing ſeaſon, to ſtrengthen the ſhoots, and prepare them wholly for future forcing, giving them neceſſary pruning according to that of each ſort in the open ground.

Note alſo, in the above forcing glaſſiaries, may introduce pots of many ſorts of ſmall ornamental flowering plants and ſhrubs, to force to early flowering, ſuch as pinks, carnations, &c. any kinds of ſpring flowering bulbous roots, roſes, hypericums, Perſian lilacs, ſyringas, and various other ſorts, as may be required; having them planted in pots, may be introduced at the commencement of the forcing ſeaſon; and ſupply them with waterings, they will advance freely in their ſeveral growths, and flower early.

Hot-houſe, or Pinery, for the Cultivation of Pine Apples and other tender Exotics, and for raiſing ſeveral early Articles of the Kitchen Garden, &c.

A HOT-HOUSE, or pine apple ſtove, being generally a branch of the kitchen garden buſineſs, for the cultivation of the *ananas*, or pine apple plants aforeſaid, as being very commonly placed in the kitchen garden, it will be neceſſary to give the eſſential directions for its general management, and that of the pines, and other plants of that tender quality, requiring conſtant aid of artificial heat in the above preſervatory, and for raiſing ſome early kitchen garden eſculents therein.

PINE APPLE,

In the Botanic Syſtem, is the Bromelia Ananas *(Ananas) or Pine Apple Plant.*

The Engliſh Appellation of Pine Apple to this Fruit may be ſuppoſed to be derived from its great reſemblance in Shape and Structure to the Cones or Fruit of the common Pine-tree, or Stone Pine (Pinus Pinea).

THE PINE APPLE plant is a moſt tender herbaceous exotic, native of the hot parts of America, and in this country requires conſtant protection of a glaſſiary, furniſhed internally with bark hot-bed heat all the year, and flues for fire heat additionally in winter, to produce a continual high degree of heat equal to that of its native climate; is an herbaceous perennial plant, ſhooting up with many long, narrow, rigid, prickly edged, continuing leaves, two or three feet long, ending in a ſharp point, and amidſt them a robuſt erect ſtalk crowned by a ſingle fruit, of a conical, roundiſh, oblong, and oval ſhape, in different varieties, covered with numerous roundiſh tubercles in regular order, with a crown of leaves, forming a young plant at top; the fruit, advancing in the ſpring, increaſes to a large growth in ſummer and autumn, then ripening of a golden yellow, or yellowiſh green, blackiſh green, &c. imparting a high fragrance, and of a rich delicious taſte and flavour; the plant propagating

pagating and perpetuating its ſpecies plenteouſly in its fruiting ſtate, by young ſuckers from the root, the crown at top of the ripe fruit, and ſmall ſuckers at the baſe; all which, although devoid of roots, being detached when the fruit is ripe, and planted ſingly in ſmall pots of rich mold, plunged in the bark-bed, quickly take root and grow; and as they advance in growth, being ſhifted into larger pots once in ſix months, they in two years produce fruit as above, with young plants for future propagation, and the old plant then decays, never fruiting but once; having always young plants advancing in ſucceſſion in three different ſtages of growth, each a year older than the other; two or three years old for preſent fruiting, one or two years old to fruit the year after, and young yearling ones of the preceding and ſame ſummer's ſuckers and crowns, advancing to two years old, to ſucceed the laſt mentioned; and in this progreſſive manner a conſtant ſucceſſion is ſupported, whereby to have always a proper ſupply, of eligible age and ſize for fruiting.

The varieties of pine-apples, in regard to the fruit, are,

Sugar-loaf, or conical pine-apple.
Queen pine-apple (oval fruited).
Black Antigua pine-apple.
Late Montſerrat pine-apple.

Which principal ſorts ripen of different colours, as,

Golden yellow.
Greeniſh fruited.
Yellowiſh green.
Olive coloured.
Red fruited.
White fleſhed.

And of the different varieties, there are conical fruited, roundiſh-oval, and oblong-oval.

Silver ſtriped leaved.
Gold ſtriped leaved.
Smooth leaved (leaves without ſpines).

The above being the principal ſorts of ananas, all accidental varieties of the ſame parent ſpecies (Bromelia *Ananas*), the plants are accordingly all of ſimilar growth

growth and tender temperature, the ſame method of culture is applicable to the whole, all requiring the continual protection and conſtant heat of a hot-houſe, in which they are always planted in pots of rich loamy compoſt, one plant in each pot; firſt in ſmall pots (48s), the young yearling plants, or crowns and ſuckers; and according as they advance in growth, either ſome of the forwardeſt the ſame year, in September, or the whole in the following ſpring or autumn, are ſhifted into larger (32s); afterwards, in their further advanced ſtate, next year in autumn, are ſhifted into others a ſize or two larger (24s or 16s), finally to remain for fruiting the following ſpring and ſummer, &c. or if in two years they are advanced to a more large ſtrong fruiting growth, are ſhifted in Auguſt into the largeſt ananas pots (16s), for continuance for next year's fruiting, as aforeſaid; all which pots of plants, from the ſmalleſt to the largeſt ſize, or in every ſtage of growth, are always plunged in the bark-bed of the pinery, and that of its appurtenances of ſucceſſion-houſes and bark-pits, &c. in order to have the benefit of the peculiar kindly moiſt heat of the bark immediately about the roots, which is eſſentially neceſſary to the proſperity of growth and large fruiting of theſe moſt tender exotics.

That as pineries conſiſt of a larger houſe or fruiting-ſtove, and a ſmaller or ſucceſſion-houſe, the latter is eligible principally for the young ſucceſſion pines while in their minor advancing growth to a fruiting ſtate, but the large full grown two years plants, arrived to a proper age and ſtrength for producing fruit, ſhould, when advanced to that maturity, occupy the main hot-houſe or pinery-ſtove; previous to which, being ſhifted in Auguſt, as above obſerved, into the large continuing pots, they are generally removed into the ſaid fruiting-houſe in October, at which time the internal bark-bed being wholly renewed with a full quantity of entire new tan, in order to ſupport a conſtant lively heat all the enſuing winter; and when this is made and become of a proper heat, the pots of pines are removed from the ſucceſſion-houſe and plunged therein regularly in rows length-

ways, the talleſt behind, in a regular gradation to the loweſt in the front row, plunging them either fully at once to the rims of the pots, or if doubtful of overheat in the beginning, plunged only half way at firſt for a week or two, then fully plunged; and from this time, middle or end of October or beginning of November, fire heat muſt be added, and continued all winter and following ſpring till May.

For theſe tender exotics in this country require the conſtant aid of artificial heat, both by continual bark-bed heat all the year, and that of fire additionally in winter; the bark-bed being moſt neceſſary both to afford a kindly growing moiſt heat immediately about the roots of the plants, as above ſuggeſted, to make them grow proſperouſly and fruit well of a large ſize, as they will not ſucceed effectually or produce fine fruit without that aid of being conſtantly plunged in the bark-bed, and which is alſo eſſentially requiſite to diſpenſe a proper degree of heat to warm the internal air, ſufficient alone for this effect all ſummer, from May till October, then aſſiſted by fire heat, commencing the middle or end of that month, and continued every evening, and occaſionally in the morning, or all day in ſevere weather, during the winter months, and till May aforeſaid, the fire heat being communicated by flues ranged along the inſide walls in the front, ends, and behind, proceeding from a furnace on the outſide, in which the fires are made; making them about four or five in the evening, and ſupported till nine or ten o'clock, to warm the internal air ſufficiently till morning, when a moderate fire will alſo be neceſſary, as above obſerved; and ſometimes in ſevere froſts and cold, wet, or foggy weather, will be required all day, as hereafter more fully explained.

Likewiſe the ſucceſſion pines in their different ſtages of growth ſhould alſo be ſtationed in their allotted diſtricts in September or October, and plunged in freſh-made bark-beds, either in the main pinery, if room, and there are no other conveniences, in ſucceſſion compartments; but better if in a ſeparate ſmaller ſucceſſion-houſe or bark-pit, and there plunged in the bark-bed all

all the year, aſſiſted by moderate fire heat in winter, &c. as above obſerved for the fruiting plants; and, according as they advance to two years growth, and large potted, are to be removed annually into the fruiting houſe, in the above-mentioned ſeaſon of October, to fruit the year enſuing.

Theſe plants are propagated plentifully by a progeny of young plants, produced both in ſuckers emitted from the ſides of the old plants in their fruiting ſtate, at or near the root, and by crowns on the top of the fruit, and frequently by ſmall ſuckers at the baſe thereof; all which productions of young plants are obtained principally from the fruiting plants when the fruit is ripe in ſummer and autumn, &c. alſo ſometimes from the young ſucceſſion pines when they chance to run to fruit in their minor growth, eſpecially by furniſhing crowns on the top of the ſmall fruit, and ſometimes alſo in ſuckers from the plants: for as in pines the ſame plants, old or young, never produce fruit but once, they in their fruiting ſtate always furniſh the above progeny of young crowns and ſuckers previous to their diſſolution, whereby to propagate and perpetuate their ſpecies, as before obſerved; and when the fruit is arrived to full growth, the young plants are generally of proper maturity to detach for planting; though if a good ſtrong ſucker is left on an old plant, it will continue in growth, and ſometimes the ſuckers will fruit the following year: but this is not for general practice.

That in the above ſtate of growth the young plants in ſummer, autumn, or any ſeaſon when they occur, are to be taken off for propagation; in which obſerve, that the crown plants on the top of the fruit, and alſo thoſe of the ſmall ſucker kind produced under its baſe, are proper to detach when the fruit is ripe, not, however, till after the fruit is gathered and ſerved to table, eſpecially the crowns, which ſhould be taken off clean to the head of the fruit by a gentle twiſt, as alſo any ſuckers at the baſe, in order to be returned to prepare for planting; and the bottom ſuckers produced from the plants are alſo generally of proper growth to detach for planting when the fruit is full grown, or ſometimes not till

a week or fortnight, or more, after the fruit is cut; obſerving in this caſe, if, when the fruit is gathered, the bottom ſuckers are very ſmall, cut down the leaves of the parent plant, and keep them plunged in a good heat in the bark-bed, &c. to forward the ſuckers to a ſtronger growth; and, in either inſtance, when the ſuckers are from about five or ſix to eight, ten, or twelve inches long, appearing a little browniſh at bottom, are in a good condition, then ſlip them off clean to their origin.

Then obſerve, as theſe crowns and ſuckers are generally ſucculent, or abounding in moiſture, at the baſe where attached to the fruit or plants, more particularly thoſe of the fruit, it is proper, before planting, to lay them in a dry warm place, or in the ſtove, a few days, or a week or two, till the ſucculency and moiſt part at the bottom is dried; otherwiſe, the moiſture might occaſion them to rot in the earth if planted without taking this precaution; then having ſome ſmall pots (48ˢ), and a quantity of prepared rich light earth or loamy compoſt, fill the pots therewith, and ſtripping off ſome of the outſide under leaves of the crowns and ſuckers, and cut away any ragged part at bottom, plant one in each pot, cloſing the earth round it moderately firm; give a very little water; and then having a bark-bed ready of a good lively heat, either part of that in the main pinery, if no other, or in the ſucceſſion-houſe, or any detached bark-pit; otherwiſe a ſtrong dung hot-bed, with ſome old or new tan or bark at top, ſix or eight inches to a foot thick, and to be defended with a frame and glaſſes, and the heat ſupported by occaſional linings of hot dung; plunge the pots into the bark in either of thoſe beds cloſe together, filling up all interſtices between; put on the glaſſes cloſe; and in hot ſunny weather give a ſlight ſhade of a mat from the mid-day ſun for the firſt week or fortnight; and according as the earth in the pots becomes dry, give moderate waterings; and admit a ſmall portion of air in ſunny warm days, by tilting or drawing down the lights one, two, or three inches, or more.

They

They will thus ſoon take root and grow, continuing to give neceſſary light waterings and admiſſions of freſh air; and if they are in the main ſtove or ſucceſſion-houſe, they may be permitted to continue, or alſo if in a detached pit, this kept to a good heat; but if in a dung hot-bed under garden frames, they in ſix weeks or two months, when well ſtruck in a growing ſtate, may be removed in the pots, about October or November, into the ſucceſſion-ſtove or any eligible bark pit; or occaſionally, if not ſufficient room in the other places, or in default of ſucceſſion apartments, they may occaſionally be continued in dung hot-beds, having a new one ready of ſtrong ſubſtance, prepared as above, into which to remove the plants when the heat of the former bed decays, ſupporting the heat of each with neceſſary ſubſtantial linings of hot dung to the ſides, as required; and the ſides of the frame defended with dry warm litter, and the glaſſes well covered every night and ſevere froſts; however, where convenient, it will be more eligible to remove them the beginning of winter either into the main pinery, or any of its appendages, in ſucceſſion pits, &c. and managed as directed hereafter for the general culture of the hot-houſe and pine plants, &c. obſerving, in the mean time, according as they advance to ſome conſiderable growth, either ſome early forward plants the ſame year, in September, as before obſerved, or wholly next March, April, or Auguſt at fartheſt, to ſhift them into larger pots (3^{s}), with the balls of earth to their roots, and watered; the bark-bed muſt then have an augment of about one-third of new tan, the whole forked over to the bottom, and the pots replunged; and next year, in their further conſiderably advanced ſtate, ſhould be ſhifted again into pots a ſize or two larger (24^{s} or 16^{s}), if ſtrong plants, to remain for fruiting the following ſpring and ſummer, &c.

Though ſometimes ſtrong ſuckers, &c. early planted in ſummer or autumn will attain a proper growth in one year, by the autumn following, for fruiting plants.

With reſpect to the requiſite conveniences of hot-houſes, &c. for the cultivation of the pine-apple, it is

moſt eligible to have a larger main houſe principally for the full grown fruiting plants, deſcribed above, and more fully hereafter, and a ſmaller one for the ſucceſſional young pines, both of the one and two years growth, and the younger yearling crowns and ſuckers; all which young plants in the ſmaller or ſucceſſion-houſe muſt be continued therein, advancing in progreſſive order in their different ſtages of growth to a proper age and ſtrength for full fruiting, ſome every year ready in autumn, for furniſhing the main pinery at that ſeaſon for producing the fruit each ſucceeding ſummer; or the youngeſt yearling and ſmall one year's plants may, when convenient, be placed in a ſeparate ſmaller bark-pit, diſtinct from the larger or immediate ſucceſſion pines, intended for the main ſtove to fruit the year enſuing; and by having the plants of different ages and ſizes in ſeparate compartments, it will be both more commodious for room, and convenient for working the ſucceſſion houſes and plants with a more moderate degree of fire heat in winter than that neceſſary for the fruiting plants in the principal ſtove, which would ſometimes run the ſucceſſions to fruit in that ſeaſon or ſpring in their infant ſtate, and thereby be deprived of proper ſized ſucceſſion fruiting plants for furniſhing the main ſtove next autumn.

However, in default of the proper appendages to the main ſtove in ſucceſſion-houſes and bark-pits for the younger plants, the whole may be carried on in the principal pinery in moderate ſupplies.

As to the conſtruction of a hot-houſe or pine-apple ſtove, moſt workmen in the building branch being now well acquainted therewith, I ſhall only give ſome general remarks of the moſt eſſential particulars: it ſhould be erected in a dry ſheltered ſituation, full to the whole day's ſun, ranged lengthways nearly eaſt and weſt, with the glaſs-work fronting the ſouth, in upright ſaſhes before and ſloping ones above, and with both ends alſo in upright glaſs work correſpondent to the front and top glaſſes; the length may be from fifteen or twenty to thirty, forty, or fifty feet long, or more, ten or twelve to fifteen feet wide, having a back wall of brick

brick work northwards, ten or twelve feet high, with low front and end walls, only twelve, fifteen, to eighteen inches, or two feet height, to admit of a good depth of upright glaſſes, forming a door way for entrance at one end next the back wall, or in extenſive ſtoves, may be at both ends, or behind in the middle, or occaſionally in the front; conſtructing flues of brick work for fire heat, to range horizontally along the inſide walls, proceeding from an outſide furnace or fire-place, in a ſingle funnel along next the end and front walls, thence continued to the back, there arranged in three returns over one another, the upper one terminating in an upright vent or chimney at one end behind for the diſcharge of the ſmoke; the firſt lower flue or funnel, extending immediately from the fire-place, conducts the heat to all the reſt, the furnace or fire place being formed on the outſide behind or at one end, or if the pinery exceeds forty or fifty feet, two fire places will be neceſſary, with each its ſeparate range of flues in two equal diviſions; internally in the bottom ſpace is formed an oblong pit for the bark-bed, ſix or ſeven to eight feet wide, extending nearly the whole length of the ſtove, and three feet and a half deep, but not ſunk more than one-third at moſt, or not at all, if a wet bottom, and formed by a ſurrounding thin brick wall; a narrow alley or walk carried all round the pit; and upon the outſide front and end dwarf walls of the houſe, upright frame work of wood is conſtructed to contain the upright glaſs ſaſhes three feet or three and a half wide, by three to four or five feet high, made to ſlide ſideways; and from the top of the upright front work are carried the inclined or ſloping ſaſhes the width of the upright glaſſes, to extend in two ranges one above the other, reaching to the top of the back wall, ſupported upon proper frame-work or rafters, and to ſlide up and down; or if made to ſlide upon rollers to draw up and let down with pullies and lines, will be very convenient.

In conſtructing the flues, never omit having one range at leaſt carried along next the ends and front, and if detached about two or three inches from the walls, they

will impart the heat from both ſides, as being of great utility in that part to repel the ſeverity of froſt and cold damps more effectually, as well as in conjunction with the back flues to diſpenſe at once a proper temperature of heat equally in all parts of the houſe; the walls of the flues in general are commonly erected only a brick on edge thick, that they may ſoon impart the heat, and in dimenſions ſix or nine inches wide, by twelve inches depth in the clear, and each return covered with ſquare paving tiles; and that as the flues are either built cloſe to the wall, imparting the heat only from the front, or in ſome houſes are a little detached, to diffuſe the heat from both ſides; the latter method has this advantage, that by the flues being detached two or three inches, or more, both ſides worked equally, they will diſpenſe the heat more abundantly with leſs force of fire, by imparting it both from the front and back; not generally requiring ſo much ſtrength of fire heat in the furnace as when attached cloſe to the walls, in which much of the heat muſt be loſt behind; in each range of flues, places ſhould be contrived to be opened occaſionally to clean them from ſoot, when foul, or much clogged up therewith; alſo in the beginning, flues may have a regulator, or regiſter of iron, near the fire-place, to ſlide croſsways, both to diminiſh the heat when it at any time appears too ſtrong, or admit it more freely: the brickwork of the flues to be executed very cloſe, the joints well cemented, that no ſmoke can enter the hot-houſe; the inſide plaiſtered with a compoſition of lime-mortar and cow-dung, the front of the flues thinly plaiſtered, to cloſe all crevices of the bricks, alſo the inſide of the walls of the houſe, and all neatly white-waſhed; the flues in ſome capacious hot-houſes are carried alſo round next the walls of the bark-pit, in order that the heat, having a longer extent of flues to paſs through, may diſpenſe its influence more effectually; obſerving, however, in this caſe, the flues muſt be erected quite detached from the bark-pit wall two or three inches at leaſt, otherwiſe the heat would dry the bark too conſiderably, or ſometimes be in danger of ſetting the bark on fire.

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For the glaſs work, the ſaſhes are generally three feet or three and a half wide, having thin bars of wood to receive the glaſs, ranged lengthways, ſix to nine inches aſunder, and ledged above for the reception of the glaſs panes, which ſhould be laid in putty between the ſaid bars of the ſaſhes, particularly the top or ſloping glaſſes, the ends of the panes lapped half an inch to an inch; but the upright ſaſhes may either be the ſame, or rather laid in lead or thin ſquares of wood, like common window ſaſhes, to fix them more ſecurely, as being more apt to diſplace than in the ſloping lights; all the glaſs work well cemented, perfectly wind and water tight. And in all of which the fire-place or furnace ſhould generally be defended under cover at ſides and above.

All the wood work of the hot-houſe ſhould be well painted in oil and white lead, both to preſerve the wood and to give the whole a more lightſome appearance.

The work of building theſe erections of hot-houſes, &c. ſhould generally be carried on in ſummer, or finiſhed early in autumn, that the whole may be thoroughly dry, in proper condition to receive the plants the ſame year, where intended.

But beſides the principal ſtove, it will be of much advantage to have a ſmaller one to contain and forward the ſucceſſion plants in their different degrees of growth to a proper ſize and ſtrength for fruiting, without incommoding or crowding the main pinery or fruiting-houſe; and according as the young plants in this ſucceſſion apartment arrive to proper growth for fruiting, they can be readily removed in their pots into the main pinery at the proper ſeaſon, ſome every autumn; thereby be always furniſhed with an annual ſupply of full grown plants for fruiting every year; having ſucceſſional ſupplies of young in the ſaid ſucceſſion-houſe in two or three different ſtages of growth, as two years, one year, and young crown and ſucker plants of the year, advancing progreſſively, one a year's growth before the other, to have a proper quantity arriving to a fruiting ſtate every autumn for the fruiting-ſtove, to fruit each ſucceeding ſummer, &c. and by having the ſucceſſion plants in a ſeparate ſtove, it will alſo be more conve-

nient in the fire-heat ſeaſon to admit of making the fires more moderate than is generally neceſſary in the main ſtove for the fruiting plants after placed therein, to forward them in a free growth, in order to have them ſhew fruit in due ſeaſon in the ſpring, as ſometimes a ſimilar high degree of heat is apt to run the ſucceſſionals to fruit a year or two too ſoon, while of an infantine or ſmall growth, and in which the fruit would be of inſignificant ſize; and by the plants thus fruiting at an immature ſtate, breaks the regularity of ſucceſſion of full-ſized plants for furniſhing the principal ſtove for fruiting in perfection the year enſuing.

This ſucceſſion-houſe may either be erected cloſe to one end of the main pinery, or a ſmall one at each end, each divided from the main houſe by a glaſs partition, one to contain the immediate ſucceſſion plants, the other the younger ones; or may be erected wholly detached, either endways, at ſome diſtance more or leſs, or at a convenient diſtance in front or behind the other, where it may alſo have the full ſun, and may be nearly of the ſame conſtruction as the principal ſtove, but of leſs dimenſions, if thought neceſſary, both in length and width, and not ſo high, conſtructed with upright front and end glaſſes, and ſloping ſaſhes above, and flues as in the main ſtove; or is ſometimes brick-work all round with only ſloping glaſſes at the top, or ſometimes the whole width and length is allotted for the bark-pit, without any internal walls, &c. and either without flues for fire heat, or having internal flues carried round the upper part of the back wall above the bark-bed; though to have the bark-pit conſtructed ſeparate within, and a walk all round, is conſiderably the moſt convenient, and the flues arranged as in the principal pinery; however, that of the ſame conſtruction as the fruiting-ſtove with upright as well as ſloping glaſſes, is preferable.

Or likewiſe ſometimes one or two ſmaller bark-pits furniſhed with only top ſloping glaſſes, are allotted principally for the younger ſucceſſion plants of a year old, and the crown and ſucker young plants of the preceding and ſame year, and which may be ſix or eight

feet

feet wide, length as convenient; a brick-work wall all round, glaſſes only at top, and in which to have a bark bed the whole width and length a yard or three feet and a half deep; the back wall being raiſed five or ſix feet, and four in front, both ends correſponding in the ſame proportion with the front and back wall; and is conſtructed ſometimes without any flues for fires, and the young plants carried on by bark-bed heat only, or occaſionally with one or two ranges of flues behind in the upper part above the bark-bed, for moderate fire-heat in winter.

Alſo ſometimes a ſmaller bark-pit as above, of brick-work, or poſt or planking, with only ſloping glaſſes at top, allotting the whole width and length for a bark-bed, without flues for fire, is occaſionally uſed princi-pally for receiving and ſtriking the crown and ſuckers of the year at firſt planting, or to contain them occa-ſionally the firſt winter, and may be four and a half to five or ſix feet wide, raiſed five or ſix feet behind by four depth in the front, the ends in proportion, may be filled with new bark in autumn, about Auguſt, Sep-tember, or October, &c. as may be required, according as a proper quantity of crowns and ſuckers are ready.

Or till a proper quantity of crowns and ſuckers are obtained, they, as they occur, may be plunged in the bark-bed of the main ſtove or ſucceſſion-houſe be-tween the pots of large plants, where they will ſtrike, and may be afterwards potted and removed into the above-mentioned bark-pits or dung hot-beds, &c.

In default of ſufficient bark-pits as above, ſometimes for the young crowns and ſuckers of the year, ſubſtan-tial dung hot-beds under deep garden frames, and proper glaſſes are occaſionally uſed juſt to ſtrike the plants, at firſt, to proper roots, and continuing them in a mode-rate growth for five or ſix weeks, or two or three months, or ſometimes all winter, in want of proper room in the ſtove, &c. the beds being of hot dung, made in autumn or beginning of winter, a yard or three feet and a half or four feet depth or high in dung, the frame ſet on; then a quantity of any waſte or new bark added ſix to twelve inches thick within the frame, upon

the dung; and in which the pots of young pines are plunged; and the heat of the bed, when declining, to be renewed and ſupported by ſtrong linings of hot dung to the ſides, and repeated as occaſion requires, or removed into a new hot-bed when the heat of the old is conſiderably decreaſed; and if the plants are continued therein in winter, the ſide of the frame ſhould be well defended with ſtraw or warm long litter; the glaſſes covered with mats every night, the plants afterwards to be removed into the ſucceſſion-houſe or main ſtove, according to the conveniences, or may occaſionally be continued in the dung hot-beds, to attain a larger growth, if no other conveniences, as in which they, with proper care, may be raiſed to a good proper ſize for fruiting, then removed into the main pinery.

However, the whole culture of the pines may be carried on in a principal pinery, and ſmaller ſucceſſion houſe, as above deſcribed; or occaſionally, for want of other conveniences, wholly in the ſame ſtove, in ſmall quantities; allotting the principal part of the bark-bed for the fruiting plants, and a ſmaller portion for the ſucceſſions; though generally with greater convenience and good ſucceſs, aſſiſted with a ſucceſſion houſe or bark-pit; and have therefore mentioned the different requiſites that are generally and occaſionally uſed in the culture of theſe plants.

Some pineries are conſtructed with double ſloping top glaſſes; that is, with a ridge-form top, hipped or ſloping equally on both ſides like the roof of a houſe, with intent to receive the ſun more effectually; and in which the ſtove, inſtead of ranging longways eaſt and weſt, as in the common method, is extended ſouth and north, the walls all an equal height, half a yard to two or three feet; ſupporting upright glaſs-work three or four feet high, with ſloping glaſſes reaching from the top of the uprights on both ſides, meeting in a ridge in the middle above; having a bark-pit occupying the bottom internal ſpace longitudinally; and flues carried along the inſide of the walls, and ſometimes alſo, in capacious ſtoves, are carried round the walls of the bark-pit a little detached; likewiſe ſometimes this kind of ſtove is

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ſo capaciouſly wide as to admit of two moderate bark-pits ranging parallel, and with ſometimes a range of flues continued between the pits: however, in regard to the merit of this kind of ſtove, I ſeldom obſerved any particular advantage in preference to the common ſorts, but, ſometimes, rather inferior, eſpecially in winter; as the ſun at that ſeaſon, taking the top glaſſes lengthways, in an oblique direction, has leſs power within than on the common ſouth fronting ſtoves.

Some pine-houſes are alſo built circular, or octangular, the walls all an equal height, half a yard to two feet, &c. as obſerved above in the double-ſloped pinery, with upright glaſſes in the ſame proportion, and with ſloping glaſſes above; having a circular bark-pit or two ſemicircles; flues extended along the inſide of the walls as in the others, or ſometimes round the bark-pit walls, detached therefrom not leſs than two or three inches.

However, in general, the common ſouth-fronting ſtoves ranging longways eaſt and weſt, with an eight, ten, or twelve feet wall behind, and glaſs work before full to the ſouth, with the bark-pit ranging in the ſame direction, prove the moſt commodious and effectually ſucceſsful at all ſeaſons, and beſt calculated to receive the influence of the ſun's heat in a proper degree, and alſo to reſiſt the froſt or cold in winter.

In pineries in general, it is eligible to have them of but moderate height between the top of the bark-pit and glaſſes, both that the internal heat may more effectually have proper effect, and that the pines, &c. may advance in a ſtronger robuſt growth, not drawing up weak; for when the glaſſes are lofty the plants aſſume an aſpiring growth upward toward the glaſſes, and thereby become weaker than in a moderately low ſtove; therefore five or ſix feet in front, by eight, ten, or twelve at moſt behind, will be found moſt eligible for good ſucceſs, both in the pines and other moderate growing plants, as well as in forcing any of the kitchen garden eſculents, as kidney-beans, ſtrawberries, &c. that in all pineries, and other glaſſiaries, worked occaſionally by fire-heat in winter, it is proper to have flues next the front, as well as behind; for the front

flues

flues not only aſſiſt in warming the internal air ſooner, but are very effectual in repelling the outward cold from approaching in that part in ſevere weather; likewiſe in the principal range of ſtoves, if a covered ſhed is extended behind along the back wall, it both defends that part from the immediate effects of rigorous froſts, and driving rains, ſnow, &c. and will be very convenient to contain the fuel, and many other materials relative to the garden—however, this is only mentioned as of ſome advantage, though not abſolutely neceſſary.

Thus far relative to the neceſſary conveniences of the ſtoves, and ſucceſſion houſes, &c. in which to cultivate the pines; next follow the principal particulars concerning the proper earth, pots, bark for the bark-beds, proper fuel for the fires; and then the general culture.

With reſpect to earth for the pine plants, ſhould have in preparation a quantity of good rich earth in a heap or ridge, in a dry ſituation, not under cover, but fully open to the action of the air, ſun, rain, dews, &c. and this may be any rich garden earth blended with a portion of rotten dung, or have a lightiſh loamy ſoil, from a paſture, the top ſpit and turf together, with ſome beſt rich light garden mould and rotted hot-bed dung, all blended together in a long high ridge or round heap, for ſeveral months turning it over once in ſix weeks or two months, to mix and incorporate the materials effectually; at turning, break the large lumps; and when the turfy parts and dung are thoroughly rotted to earth, is then fit for uſe; when let the quantity required be well broken, or occaſionally rough ſcreened, or otherwiſe break all the lumpy parts moderately ſmall with a ſpade, &c. and ſometimes, in preparing it to fill the pots for planting, rub it finer, occaſionally, between the hands.

Pots, in which to plant the pines, are of different ſizes, ſmall, middling, and large, ſuitable to the different degrees of growth of the plants; ſmall pots for the firſt planting, denominated by the potters 48's, as being ſo many in a caſt, proper ſizes for planting the crowns and ſuckers immediately from the fruit and pa-

rent

rent plants; a larger ſize called 32's, for ſhifting the ſaid plants into when of ſeveral months or a year's advanced growth—another ſize larger, called 24's, in which to ſhift them the ſecond year when more conſiderably advanced, either for the laſt ſhifting, or if large ſtrong plants the largeſt ſized pots for final ſhifting to remain for fruiting, are called 16's, being that number of pots in a caſt; this is the order in which the potters eſtimate them for ſale; and the ſmall, middling, and large, are the ſame price per caſt at the pot houſes—at from half a crown to three ſhillings, eſpecially in the neighbourhood of London, as at Lambeth, Vauxhall, and Deptford, but I have generally obſerved that the Deptford pots have the preference.

Tanners bark for making the bark-beds is obtained at the tan yards, at all ſeaſons of the year, at *five ſhillings per* load of forty buſhels eſpecially about London, in ſome other places cheaper; this ſhould be freſh, or not having lain long out of the tan vats, to have loſt its fermenting property, nor have become earthy; the middling ſize or moderately large ſort is preferable to the very ſmall grinded bark, which ſooner waſtes and rots than the larger kind; and the general ſeaſon to furniſh the bark-pits with full ſupplies for entire new bark beds, is in Autumn, about September or October, or beginning of November at lateſt, that they may continue a good heat all winter; obſerving, when obtained, the particulars in preparing it, if neceſſary, as mentioned under the article *Tanners bark Hot-beds*; ſuch as, if of a freſh raw nature, or very wet, either toſs it up in an heap for a week or more, to promote a fermentation for heat, and to drain off ſuperabundant moiſture, or ſpread abroad thinly in a clean place in the air and ſun a day or two to dry; but if in good condition, or moderately dry, it may be thrown into the pit immediately, or as ſoon as required, and when of a proper heat the pots of pines to be plunged therein; it will ſupport a good heat for three months, and being then forked up to the bottom revives the heat for two months longer; when applying ſome new bark, and again forked over, new and old together, and which being repeated in two or three

three months after, the ſame bed will continue a proper heat for a twelvemonth. See *Bark-beds*.

As to fuel for the fires in winter, different ſorts are uſed, as coals, coal-cinders, wood, and peat, &c. as may be the moſt conveniently or cheapeſt obtained; but coal or coal-cinders are ſuperior for this purpoſe, for making the moſt ſteady, regular, and durable fires, and which require leſs trouble in attending to ſupport them in a proper regular degree; or, in ſome places, in large tanneries, they make what is called bark-turf, or peat, made of the waſte or ſuperfluous bark, in ſquare cakes, which are alſo occaſionally uſed for fuel in hot-houſe fires.

As a guide to regulate the requiſite degree of fire-heat in the pineries, a good thermometer is neceſſary, having the ſtandard degree of heat marked thereon (Ananas), and this ſhould be ſuſpended or placed upright about the middle of the ſtove, &c. with the back part towards the ſun, that the liquid ſpirit in the tube be affected only by the internal heat of the place; and the fire-heat ſhould be regulated accordingly, to ſupport it in a proper temperature to raiſe the thermometer to the above degree, or within 5° under or over (remark this). See the article *Thermometer*.

The proper ſeaſon for furniſhing the hot-houſe and ſucceſſion houſes, &c. with the ſupply of pine plants is principally in autumn, about the end of September, or any time in October, not later than the beginning of November, or if then omitted may be done in the ſpring; that for the beginning or firſt ſupply of plants, they may be procured by purchaſe at moſt of the principal nurſery gardens, both fruiting plants and ſucceſſions, or occaſionally large plants advancing in young fruit in the ſpring if required; having, however, both a proper ſupply of two years plants, or of a proper ſize for fruiting the enſuing ſeaſon, alſo a proportionable ſupply of younger plants to fruit in ſucceſſion the year after, as likewiſe young ſucceſſion plants yearlings, or that have been raiſed from the crown and ſuckers the preceding ſummer and autumn, to be advancing to two years growth, to ſucceed the firſt ſucceſſions in fruiting.

That

That where the firſt ſupplies of pine plants are to be procured from any diſtance, as ſometimes is the caſe, they ſhould be prepared for carriage by tying the leaves of each of the large plants together, and in their pots placed in a cart, or waggon, &c. upright in ſtraw, and ſome cloſely packed between the pots; and the cart or waggon covered over with a tilt or cloth, or large garden mats, if cold weather; or large fruiting plants may be packed in baſkets, either ſeparately or in large wide baſkets, three plants in each; the edge of the baſket ſet round with long willow rods; theſe drawn together at top to defend the plants, and then cloſely matted over with garden mats, and placed in a waggon or cart, &c. as above, for carriage to the place where intended.

The plants ready, either of your own raiſing or procured from other gardens, and having the bark-pits in the main ſtove or fruiting houſe, and of the ſucceſſion houſes, furniſhed with a bed of new tan at the above ſeaſons, and the plants being all planted in pots ſingly; the pots larger or ſmaller, according to the ſize of the plants, are to be plunged in the bark-beds, in rows, the talleſt behind the others in a regular gradation to the loweſt in the front, having the larger or fruiting plants placed in the main pinery, the others placed in ſeparate ſucceſſion places, if any, otherwiſe all in the principal ſtove, if room, and there is no other; but rather, if poſſible, have the younger plants chiefly ſeparate in diſtinct ſucceſſion houſes, or bark-pits, &c. before deſcribed, in which both to have more room without crowding the main houſe, and alſo to have rather a more moderate fire-heat in winter than is neceſſary in the main houſe for the fruiting plants, as before obſerved, as the full heat of which is apt ſometimes to run the ſucceſſions to fruit in their infant ſtate, or before they acquire ſufficient ſtrength to produce fruit of any tolerable ſize; as alſo even the young crowns and ſuckers are, in that caſe, apt to run to ſmall fruit of no value, which would be a great diſappointment in the two ſucceeding years, in not having a ſupply of large plants to produce full-ſized fruit in proper ſucceſſion.

For,

For, as formerly obſerved, theſe plants, either young or old, when once they have fruited, produce no more in the ſame individuals, makes it always neceſſary to raiſe ſucceſſion ſupplies annually, and to have the plants advancing in three different ſtages of age and growth; two years full plants for preſent fruiting; one or two years ſucceſſion plants to ſucceed the former in fruiting the year following; and young plants of a year, or of the laſt ſummer and autumn crowns and ſuckers, before obſerved, advancing to a proper growth to fruit in ſucceſſion to laſt mentioned; and by thus raiſing a ſupply every year from crowns and ſuckers, you will, after the firſt two years, have a regular ſupply of different degrees of growth advancing one after another to a fruiting ſtate annually.

Therefore obſerve every year, at the afore-mentioned ſeaſon, October, &c. that not only the fruiting pines ſhould be removed from the ſucceſſion houſe into the main ſtove, but alſo the next ſucceſſion plants, into their allotted ſtation; likewiſe the younger ſucceſſion pine plants, yearlings, or the preſent year's crowns and ſuckers, ſhould alſo be placed in freſh bark-beds, &c. either in detached pits all winter, or into the ſucceſſion-houſe, or main ſtove, if room, according to the conveniences, agreeable to former intimations.

Preparatory to the reception of the pine plants, have the bark pit in the pinery and ſucceſſion places, &c. filled with new tanners bark, before deſcribed, raiſing it a few inches above the top of the pit to allow for ſettling, ſhutting the glaſſes cloſe to draw up the heat; and before introducing the plants from their preſent compartments into the new beds, let theſe latter firſt ſettle and ferment to a proper degree of heat; then bringing them in their pots, and being furniſhed with a ſmall one-handed fork, to open apertures in the bark for the reception of the pots, plunge them into the bark in the order before mentioned, the talleſt behind, gradually to the loweſt before, in rows lengthways of the bed, either plunged at once to their rims, or top of the pots, if the heat is moderate, but if apprehenſive of too ſtrong heat

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at first, plunge them only about one third, or half way, for a week or two, and then plunged the full depth; and in either method as soon as the plants are introduced into the bark-beds, shut the house close; and if cold weather make a moderate fire at this time about sunsetting, to warm the internal air more effectually.

The plants, thus placed in their allotted compartments in the bark-beds, are constantly to remain therein; the bark will both furnish a continuing regular growing heat about the roots of the plants at all seasons, and at the same time warm the internal air of the stove, &c. in a proper degree sufficient in summer, but must be assisted by fire-heat in winter, as formerly suggested, from October or November, till April or May, especially the fruiting plants; and the same bark-bed, by taking up the pots, and forking up the bark every two or three months, or when the heat declines, and with sometimes the addition of about one third of new tan once or twice, or about mid-winter, or towards January, and in April, and again about July or beginning of August, forking the old and new together, will continue a good heat the year round, till the end of autumn following; when towards the latter end of September, or in October, being greatly exhausted, the old bark may be screened or sifted, the earthy parts removed, the other retained, and the pit then filled again with new tan, forking this and the remaining old together, into a regular bed, will continue for another year to come, and so proceeding every year, in the same manner, and as hereafter explained.

General Management at all Seasons.

With regard to the general culture and management of the pinery, or hot-house, with that of the succession houses, &c. it may be previously observed, that as a pine-apple stove is often used as a preservatory for many other curious tender exotics, besides the pines, both of herbaceous, woody, and succulent kinds, inhabitants originally of similar hot countries as those of the pine-apple; the same degree of heat, air, &c. requisite for the latter will generally suit the others; and the difference

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in the other articles of culture is not very material, all requiring to be kept in pots, and have a conſtant protection of the ſtove furniſhed with a continual internal heat by bark-beds the year round, aſſiſted by fires in winter, made every evening and cold mornings, and ſometimes all day in ſevere froſts, &c. with neceſſary admiſſions of freſh air both in winter and ſummer, in calm mild temperate weather, principally in ſun-ſhining days, very moderate in winter and early ſeaſon of the ſpring, by ſliding open ſome of the front ſaſhes only a few inches in the middle of the day, but more freely in warm ſpring and ſummer weather, every day when a warm ſun, ſhutting cloſer by degrees after the middle or heat of the day, or when it changes cold, and always ſhut quite cloſe before the cold of the afternoon or evening; alſo occaſional ſupplies of water once or twice a week, or oftener in hot weather, in ſummer; but much ſeldomer and more ſparingly in winter; and the plants in general will require ſhifting occaſionally into larger pots and freſh earth, ſome once or twice a year, as in the pines particularly; others once in a year or two, according to their advanced growth, and many, that are ſmall ſlow growers, as in numerous ſucculent kinds, will not need ſhifting probably above once in two years, or more; that in ſhifting or potting the various ſorts, have pots ſuitable to the different ſizes of the plants, never too large to take up much room in the ſtove; and the proper earth may, in general, be nearly ſuch as adviſed for the pines; or for ſucculent plants have generally a light dry, ſandy, or rubbiſhy compoſt; as many of theſe ſorts being ſo replete with humidity, would be apt to rot or ſome grow too luxuriant in rich moiſt earth.

Likewiſe a pinery is convenient to forward ſeveral of the more deſirable herbaceous eſculents of the kitchen garden to early perfection, as kidney beans, ſtrawberries, cucumbers, &c. as alſo many of the flowery tribe may be forwarded to early bloom, as hyacinths, dwarf tulips, anemones, ranunculuſes, jonquils, narciſſuſes, &c. alſo pinks, roſes, hypericums, ſyringas, Perſian liljacs, and many other ſmall ornamental flowering plants, which being in pots, may be introduced; the bulbous

kinds

kinds any time in winter, the others principally in January, February, till March or April.

Alſo in the pine-apple ſtove, grapes are ripened very early in the higheſt perfection; and ſome ſorts thereof, that will not ripen in the open air in this country, are forwarded to full maturity of ripeneſs in a hot-houſe or pine-ſtove; the vines or plants of the deſirable ſorts being planted in the ground cloſe to the outſide of the low front wall; and after being trained each with a long ſingle ſhoot for a ſtem, and trained up the outſide, one or two ſummers till of a proper growth, then in autumn or winter introduced through a hole at top of the brick work, or bottom of the upright frame-work, and conducted up the inſide under the inclined glaſſes, and along thoſe at both ends, to croſs thin ſlips of wood, nailed to the rafters, &c. they will bear agreeably at an early ſeaſon, ripening the grapes in May and June; requiring only the general culture of the ſtove in regard to the internal heat, air, &c. and occaſional pruning in ſummer and winter, as for the vines in the open air.

So that for the pines and other plants, both tender kinds of the ſame quality, and hardy kinds occaſionally introduced for forcing to early perfection, the general culture in regard to the degree of heat, air, &c. both in winter, ſpring, ſummer, &c. is applicable to the whole.

In the winter ſeaſon the pine hot-houſe requires both the aid of bark-bed and fire-heat; that the bark-beds being made in the internal pit in October or beginning of November, and the pine plants, in their pots, plunged therein, the beds will continue in good heat till after Chriſtmas, probably not requiring any renewal till about the beginning of January; then the heat revived by taking up the pots, and forking up the bark, and replunge the pots directly; or, if the bark-heat is much declined, firſt add about one-fourth or third part of freſh tan, and fork the new and old together; but the fire-heat will require to be commenced the middle or end of October, if ſharp or raw foggy weather, otherwiſe the beginning of November, when it will be neceſſary to make moderate fires every evening in the furnace, to heat the flues to a proper degree

gree to diffuſe an eligible degree of heat to warm the internal air, in addition to, and conjunction with, the bark-bed heat, which at this ſeaſon, and during the winter, is not fully ſufficient, eſpecially in the fruiting pinery, and principal ſucceſſion houſes, without the aſſiſtance of fire-heat every night, and alſo in cold, raw, or foggy mornings, and all ſharp weather, and ſometimes continued all day in ſevere froſts and no ſun, and this aid will be required till the end of April or May; but more moderate as the warmer ſeaſon of ſpring advances; and wholly diſcontinued in ſettled warm weather in May, &c. aforeſaid; and during the winter, ſpring, &c. moderate admiſſions of freſh air will be neceſſary in calm mild ſun ſhining weather, by ſliding open ſome of the front or top glaſſes a little in the warmeſt time of the day, together with occaſional waterings moderately once a week or fortnight, &c. to the earth in the pots, both of the pines and moſt other plants in the hot houſe, according as the earth becomes dry; the plants to be kept clean from decayed leaves, occaſionally cleaned from any contracted foulneſs; and if inſects appear on the pines, they ſhould be exterminated or cleared off as well as poſſible; and the plants, as they advance in growth, will want ſhifting into larger pots, and freſh earth, about April, and in Auguſt.

The fire heat ſhould be continued every night, and occaſionally of days during the winter months, by making the fires every evening about ſun-ſet, or four or five o'clock, and ſupported in a moderate lively ſtate till nine or ten o'clock, giving them the laſt augmentation, if neceſſary, to maintain a proper internal heat in the ſtove till morning; when alſo in cold weather make moderate fires the firſt thing; but if mild temperate weather, and a good heat within, the morning fires may either be omitted, or, if occaſionally made, ſuffered to decline as the warmth of the day increaſes; or if very ſharp cold weather, raw, foggy, cold rain, the fire may be continued gently all day, and in ſevere froſt keep the fires up fully, in the proper degree, both at night and in the day-time, eſpecially when no ſun; obſerving in all fire heat, to be very careful never to make

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the fires too violent, keeping an eye towards the thermometer, if any in the ſtove, as a guide in the requiſite temperature, in which it will be always a good aſſiſtant; or, in the early part of winter, let the fires be rather more moderate in the fruiting ſtove till January, then ſomewhat increaſed to forward the plants in fruiting.

Likewiſe in the ſucceſſion places furniſhed with flues keep moderate fires every night, but in the day-time only when very cold, and alſo let the fires be rather more moderate than in the fruiting-houſe, not to force the plants too much for fear of running them to fruit in their infant ſtate; however do not ſtarve them for want of neceſſary moderate heat, eſpecially in the bark-bed; for either extreme, in want of a proper heat, or too much, will run them into untimely fruiting; though if a good bark-bed heat, only very moderate fires will be required; or where no flues for fire, keep up a good heat in the beds, and the plants will continue in a ſucceſsful growth.

Continue the aſſiſtance of fire-heat, as above, all winter, moderating it gradually according as the warm ſeaſon advances, making it only of nights, except juſt in cold mornings or froſts, in March, April, &c. and in May, when the weather becomes ſettled, and the nights warm, leſſen and diſcontinue the fires by degrees.

The bark-bed heat in winter will continue eligible till January or February, when if decreaſed to rather a weakly ſtate, eſpecially in the fruiting-houſe, it ſhould be renewed by taking up the pots, and forking up the bark to the bottom; or if the heat is conſiderably reduced, and the bed ſunk conſiderably, ſome new bark may be added equal to about one third or fourth of the whole: and then opening a trench at one end of the bed, carrying the bark to the other to fill up at laſt, fork up the new and old together, filling up the laſt opening with the bark of the firſt, and directly replunge the pots; it will thus continue a good lively heat two months longer; and this renewal of heat in January, or beginning of February, and more particularly if new bark is then added, will greatly aſſiſt the fruiting pines in a continuation of free growth, to ſhew fruit in proper time in the ſpring, and

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with eligible ſtrength; for at that period of growth, a lively heat about the roots is very eſſential, and which will require revival again in March or April, to forward the fruit to a large ſize.

Likewiſe in the ſucceſſion houſes, pits, &c. in the above ſeaſons, January and February, when the bark-bed declines much in heat, be careful to revive it in due time, as above; and if thought neceſſary, apply a portion of new tan, and fork the whole up together, replunging the pots of plants directly; for theſe ſucceſſion plants ſhould alſo have conſtant regular heat in the bark-bed not required ſo materially ſtrong as the fruiting plants to puſh them too freely at bottom, leſt it run them to fruit; however, do not omit keeping the bark-bed always in a moderate kindly ſtate, as want of tolerable heat therein would ſtunt the plants; and in that nature of growth they are alſo apt to run into fruit, more eſpecially the younger ſucceſſion plants, and the laſt year's crowns and ſuckers; therefore keep up a moderate lively heat; and in March or April, when the plants will want ſhifting into larger pots, the bark-beds ſhould be augmented with about one-third of new tan, ſome of the earthy waſte at top firſt removed, the new tan then added, and both forked up together, which continues a good heat till July or Auguſt, when a freſh renewal as above will alſo be neceſſary; which will continue till October, and then the beds muſt be wholly renewed with freſh bark.

Freſh air is neceſſary to be admitted into the bot-houſe at all ſeaſons, leſs or more, in favourable weather; very ſparing or moderately, however, in winter or early ſpring, only in fine mild calm ſun-ſhining days, by ſliding open ſome of the front or top glaſſes two or three or four inches in the warmeſt time of the day, between from ten or eleven to two o'clock, but ſhut cloſe if the weather changes cold or cloudy, and always ſoon in the afternoon; but in the advanced ſeaſon of ſpring and temperate fine weather, and plenty of warm ſun, the admiſſions of air may be leſs ſparing, obſerving the ſame precautions as above; and in ſummer, in all hot weather give air more freely every day in

an increaſed degree, by opening the glaſſes wider, eſpecially when a hot ſun, and in which from about eight or nine in the morning, to four or five in the afternoon, according to the heat of the weather, ſhould be opened a more conſiderable width, every ſecond or third ſaſh, or ſome both at top and below; but generally beginning the admiſſion of air moderately at firſt, encreaſing it gradually as the natural heat of the day advances, and ſhut cloſer again in the ſame proportion as it declines; ſhutting all cloſe in proper time towards afternoon or evening, or as the weather changes unfavourable, that the heat of the internal air may not be much reduced, and be retained in its requiſite temperature.

In the ſucceſſion houſes, &c. proper admiſſions of freſh air will be neceſſary, as above, in a proportionable degree; or if the bark-bed or fire heat is occaſionally more moderate than in the fruiting houſe, let the admiſſion of air be leſs accordingly.

Watering is alſo neceſſary in the pinery, both to the pine-apple plants and all others occaſionally contained therein; and alſo to the ſucceſſion houſe, and occaſionally to the plants in the bark-pits.

The waterings in winter and early ſpring will be required in more moderate ſupplies, and ſeldomer, than in warmer ſeaſons; and given principally only to the earth in the pots, according as it becomes dry, once a week or ten days, or a fortnight, as you ſhall ſee it neceſſary; but to the pines in particular, once a fortnight or three weeks may be ſufficient at this ſeaſon; and always now with moderation; and if performed in a ſun-ſhining forenoon, it will be of more beneficial advantage; obſerving generally to water with the roſe or noſle of the pot off, whereby to apply it only to the earth, eſpecially the pine-plants; not permitting any or but very little water to fall into their hearts or between the leaves, at this ſeaſon of the year when the ſun has not ſufficient power to exhale it; and by lodging there would prove detrimental; to prevent which, ſhould either water with a long-ſpouted pot, or have a long ſeparate pipe to lengthen or ſhorten at pleaſure by different joints, with a funnel at one end ſide-

ways, and pouring the water into the funnel end, may more readily conduct it to any diſtant pots without watering over the plants or into the hearts; the ſucceſſion plants will alſo require occaſional moderate ſupplies, as you ſee the earth grow dry; being careful in the whole never to over-water.

But in the warmer ſeaſons of ſpring and ſummer the waterings will be oftener neceſſary; probably once a week in the ſpring, and two or three times a week in warm ſummer weather, or according as the earth in the pots appears dry: which in this ſeaſon ſhould always be continued in a moderately moiſt ſtate, eſpecially the pine-plants, and more particularly the fruiting pines, to increaſe the ſize of the advancing fruit, that it may ſwell freely to a proper magnitude; but when ripening, water ſeldomer and more ſparingly, as much moiſture would now diminiſh its rich flavour.

All other plants in the hot-houſe ſhould alſo have neceſſary waterings, in the different ſeaſons, in the proportion as above.

It is adviſeable in watering to have principally ſoft water from a pond, ciſtern, &c. where ſoftened by the air, in preference to that taken immediately out of deep wells, eſpecially before it has been expoſed ſome time in the open air, to mollify its ſharp nature.

Shifting the plants into larger pots, and ſome freſh earth, will be required twice a year to the pines, as they will advance faſter in growth than moſt others of the hot-houſe exotics; of which ſome may require ſhifting annually, others not ſo often, which ſhould be ordered according to their advanced growth, or as the roots approach to fill the pots conſiderably and want more room, and the moſt proper ſeaſon for general ſhifting is in the ſpring about March or April, and in Auguſt.

In the pines, the ſhifting is only to be practiſed to the ſucceſſion plants of the different ages, not to the preſent fruiting plants advancing in fruit, or that are to produce fruit the ſame year.

Therefore, in March or April, the ſucceſſion pine-plants that are to produce the fruit next year, if in ſmall pots, ſhould then be ſhifted into larger, as either large 32's, or if large plants 24's; alſo the younger plants of one year,

&c.

&c. if in pots too ſmall, and the plants in ſome advanced growth and thriving ſtate, ſhould alſo be then ſhifted; obſerving, previous to this buſineſs, ſhould provide a quantity of new tan to augment and renew the declined heat of the bark-bed, that it may be of a lively temperature after ſhifting, to freſh-ſtrike and forward the plants in a free growth, having for this purpoſe about as much of freſh tanner's bark as is equal to about one third of what the bark-pit will contain, the pots of pine-plants to be removed out of the bark-bed, and then nearly as much of the old waſte earthy bark at top removed as is equal to the quantity of new, which then ſhould be added upon the remaining old, to be forked up old and new together.

Proceeding to the ſhifting, having the proper pots and a quantity of freſh earth brought ready, let the plants be turned out of their preſent pots, one at a time, with the ball of earth of each pot about their roots entire, not to receive much check by removal; trim off ſome of the outſide old earth, and with a knife cut off the outward dry fibres, and in the new pots, placing a piece of tile or oyſter ſhell over the hole at bottom, put in ſome freſh compoſt, two or three inches depth, or more; ſet one plant with its ball intire in each pot, fill up around with more freſh earth to the top, preſſing it down gently round the ball; thus proceed till all is ſhifted, and then give a moderate watering to the earth in the pots; and then having furniſhed the bark pit with new tan as above adviſed, and forked up the new and old together to the bottom, directly replunge the pots in regular order; or, in ſpring-ſhifting the young ſucceſſions, ſome chuſe to ſhake the earth wholly away from the roots, trim the fibres cloſe, and cut off any hard or decayed part at bottom, pulling off ſome of the under leaves, and plant them in intire new earth, or this is particularly neceſſary to any plants that appear of a ſickly ſtate; and, in either method, plunge them as above; and as ſoon as the whole is plunged, ſhut all the glaſſes to draw up the heat of the bark-bed, and to warm the internal air, and light the fire timeouſly in the evening.

The plants, after ſhifting, having the bark-bed renewed in its heat, will ſoon ſtrike root into the freſh

earth, and all thoſe removed with balls of earth will ſcarcely feel their removal, and will ſoon advance in a free growth; the others will alſo quickly ſtrike root and grow freely, and the bark-bed will ſupport a kindly growing heat for two or three months; obſerving, however, about June or July, &c. if the heat ſhould decreaſe conſiderably, take up the pots, fork up the bark, and directly replunge the pots of plants, and this will renew the heat to continue in a proper degree till Auguſt; giving the plants frequent waterings, and admit freſh air every fine day, to ſtrengthen their growth.

In Auguſt, the beginning or middle of the month, the principal ſucceſſion pine plants of one or more generally two years, being of a proper large growth to produce fruit, in full perfection, the enſuing ſpring and ſummer, ſhould now be ſhifted into large pots, finally to remain for fruiting, commencing then what are called fruiting plants; having, for this final ſhifting, proper pots, either 24's if moderate plants, or if large and ſtrong have the large-ſized pine pots, 16's; and have a quantity of freſh rich earth as formerly deſcribed; likewiſe, for this ſhifting, the bark bed muſt be again renewed with application of new tan, providing a proper ſupply in quantity equal to about one third or fourth of what the pit contains, as obſerved in the ſpring ſhifting; and taking up the pots of plants, apply the freſh tan immediately upon the old, if the bed is much ſunk, otherwiſe an equal portion of the old earthy bark at top ſhould be removed away, filling up the bark pit with the new, and then the old and new to be forked up to the bottom in a mixed order, either before or immediately after the plants are ſhifted.

Then for ſhifting, having the new pots and freſh earth all brought ready, and the plants for this purpoſe being all removed in their pots out of the bark-bed, either into the open air, if fine weather, for more convenient room to perform the work, or within the houſe, if room enough; then turn out the plants, one at a time, from their preſent pots, generally either with the ball of earth about the roots intire, and trim away a little of the outward earth at ſides and bottom, and prune the dry long matted and mouldy fibres of the root on the outſide of the ball; or occaſionally, if any plants

appear

appear of an infirm, unhealthful, ſtunted or any other unfavourable growth, or much infeſted with ſmall inſect vermin, may be ſhaken entirely out of the earth to be planted wholly in freſh mold; firſt prune the root fibres cloſe, and pare off any hard or decayed part at bottom of the main root; then in either method, having freſh compoſt in the new pots, three or four inches depth, or more, leaving ſufficient room to receive the ball or root of the plants, ſet one plant in each pot upright, fill up with more freſh earth to the top, preſſing it gently about the ball and roots; and as ſoon as all is thus ſhifted, give a moderate watering to the earth to ſettle it cloſe to the outward fibres, &c. and, having the bark-bed prepared as above, plunge the pots into the tan in regular order in rows longways of the pit, the talleſt behind, diminiſhing gradually to the loweſt in the front row, placing them at eligible moderate diſtances, not to crowd the heads conſiderably; and as ſoon as the whole is plunged, ſhut all the glaſſes cloſe to draw up the heat ſooner in the bark-bed; and if hot ſun-ſhining weather, a ſlight ſhade of garden mats, ſpread over the glaſſes in the heat of the day for the firſt week, will be ſerviceable, till the plants ſtrike freſh roots; after which, admit air moderately every warm day by drawing open ſome of the front or top glaſſes, the bark-bed will ſoon commence a lively revived heat, to forward the free rooting of the plants into the freſh earth and ſet them off in a regular growing ſtate to acquire a proper degree of ſtrong growth by October, ready for final removal in their pots, where they are to remain for fruiting.

After the above ſhifting, and replunging the plants into the new prepared bark-bed, as they will ſoon advance in a freſh growth, give them air accordingly to promote ſtrength in their advancing ſtate, but more freely during the continuance of hot weather, agreeable to the rules formerly intimated under the article directing the admiſſion of *Freſh Air*, and ſupply them likewiſe with proper waterings, ſufficient to preſerve the earth in the pots always of a moderately moiſt temperature.

The bark-bed, ordered as above, will ſoon revive in a lively good heat, and generally continue in good condition to ſupport the plants in a proper growing ſtate till October, at which time the main ſtove will be nearly cleared of the fruit of the year, and the old bark bed exhauſted; a new bark-bed muſt be made wholly of new tan, in the fruiting pinery, and the plants in their ſame pots to be removed therein to remain for fruiting the following year.

Obſerve in the interim to continue the care of giving moderate waterings, and admit air every warm day; but when the heat of the ſeaſon decreaſes, after the beginning or middle of September, leſſen the admiſſion of air in proportion, and give it only in warm ſun-ſhining days.

The young ſucceſſion pines, one year's plants, and laſt year's crowns and ſuckers, if in advanced growth, and ſtill in ſmall pots, ſhould alſo be ſhifted at the above ſeaſon, beginning or middle of Auguſt, or in September, into other pots a ſize larger, and ſome freſh earth; performing the ſhifting as before directed, and the bark-bed augmented with a little new tan, the whole forked up together, and the pots replunged therein; giving the neceſſary aſſiſtance of watering and admiſſions of freſh air conformable to the foregoing directions; and to continue in this bed till October; when, as the old bark-bed will be then decayed and worn out, a new bark-bed, wholly of freſh tan, muſt be made for a good winter heat, &c. and in which the plants, in the ſame pots, are to be placed for the winter and the year enſuing.

The fruiting pines of the year ſhould, in the advancing growth of the fruit, have the bark-bed continued in a lively degree of heat all ſpring and ſummer, or during the time of their principal growth, by obſerving, when the heat decreaſes, to augment it, taking up the pots and forking up the bark, and ſometimes adding freſh tan, if occaſion, in January or February, or particularly a larger ſupply about April, replunging the pots directly each time; and if, in the more advanced ſeaſon, about

June,

June, the heat declines, give another forking up without farther addition of freſh tan; giving alſo frequent moderate waterings, that the whole may continue the plants and fruit in a ſtate of free vegetation; for by ſupporting an eligible bottom heat in the bark about the roots, and a moderate moiſture in the earth, the fruit will ſwell freely to a proper magnitude; ſome probably acquiring full maturity of ripeneſs in June and July; a larger portion in Auguſt and September, and are generally wholly or moſtly all ripe by September and October in the principal fruit; or ſome late ripeners may come ſtraggling in about November and December.

Ripening of pine-apples is diſcoverable by their large ſize, ſome changing of a golden yellow, others of a yellowiſh green, and olive colour, &c. in different ſorts, and all of which, when at maturity, impart a high vinous fragrance; ſome ripening in June or July, but the principal ſeaſon is from July or Auguſt till October; generally in hot weather gather them in a morning before much heated by the ſun, cutting them with ſeveral inches of the ſtem, and the crown of leaves at top, forming a young plant, is to remain attached to the fruit; and when at table for eating, the crown is to be detached and reſerved for planting, as alſo any ſuckers at the baſe of the fruit, both of which form proper plants that will produce pine-apples the ſecond or third year after.

Continue every year in the proper ſeaſon, in ſummer and autumn, to propagate ſucceſſional ſupplies of young plants, by the crowns and ſuckers of the fruit as above, and the bottom ſuckers from the old parent plants, each as already directed under the article of their propagation.

As the fruiting pines of the year will be moſtly done bearing by October, and the old bark-bed worn out, a new bed muſt then be made in the fruiting ſtove, or hot houſe, to receive the immediate ſucceſſion plants that are deſigned for fruiting next year.

In October, therefore, prepare to make new bark-beds for the fruiting pines and others, in order to their having a good regular heat for the winter, &c. for as the old beds having, probably, by proper augmentations

of forking up and additional new tan, been continued in a growing heat for a twelvemonth paſt, will now be exhauſted, have become earthy and in a very low ſtate, and therefore entire new beds muſt be made wholly of freſh tan; firſt ſcreening or ſifting the old in the pit, removing away all that paſſes through the ſcreen, retaining the reſt; and having procured a proper quantity of new tan from the tanneries, and prepared as formerly directed, proceed to fill up the pit therewith, added to the remaining old; and as you go on, beginning at one end, fork up the whole regularly together into a bed the width, length, and depth of the pit, raiſed three or four inches or more above the top, to allow for ſettling, and when this is become of an eligible moderate heat, the pines in their preſent pots are to be plunged to the brim; or, if doubtful of violent after-heat, plunge them only one third or half way for a week or fortnight, then plunge down finally to the full depth, and thus to remain the enſuing winter, ſpring and ſummer; and the bark ſupported in a proper degree of heat by the means intimated in the foregoing directions, and aſſiſted by fire-heat all winter in the ſame manner.

The immediate ſucceſſion fruiting plants, for fruiting the following year, are at the above ſeaſon, October, to be removed from the ſucceſſion pits, &c. in their preſent pots, into the fruiting houſe or main pinery; having a new bark-bed prepared as above, and there plunged in the bark in the regular manner before explained; and in which to continue to produce their fruit the enſuing ſummer, and to have the ſame general culture as formerly related, in regard to ſupporting a proper bark-bed heat, at all ſeaſons of the year, regular fires in winter, neceſſary waterings, and admiſſion of freſh air, &c. and they will then advance with young fruit in the ſpring, about January, February or March, attaining maturity in ſummer and autumn, from June, July, or Auguſt, till October, furniſhing alſo crowns and ſuckers for future plants.

Likewiſe the younger pine-plants, of different ſtages of growth and ages, ſhould alſo now, about the end of September or in October, be removed, in their preſent pots,

pots, into new bark-beds prepared in the manner before mentioned; or, if occaſion, ſome in dung hot-beds, as formerly explained.

Thus the pines of the different ages, fruiting and ſucceſſion plants, being removed into new bark-beds, &c. in their allotted apartments, to remain the enſuing winter, ſpring, ſummer, &c. they are to have the ſame management as before directed in the general culture of the hot-houſe, ſucceſſion houſes, bark-pits, &c. begin to light moderate fires in the evening, the middle or end of October, if cold weather, and continued throughout the winter till April or May, in the order formerly explained; the bark-beds ſupported in a regular heat by forking up once in two or three months, when the heat declines, giving occaſional augmentation of new tan, ſometimes about mid-winter, or January, if the heat is weakly, and particularly in April and Auguſt, the time of ſhifting the plants, and to give neceſſary admiſſions of air, and proper waterings; and the advanced ſucceſſion plants, one and two years, &c. (never the preſent fruiting pines); to be ſhifted in the proper ſeaſons, April and Auguſt; the whole, in the ſeveral articles of culture, as in the foregoing general directions.

It is of particular importance to ſupport the heats of bark bed and fire always in a regular degree of proper temperature, nearly agreeable to the directions on the thermometer, within 5° under or over the ſtandard *ananas*, eſpecially for fire heat in winter; likewiſe keep the bark-beds always regular in heat; and in the ſucceſſion plants ſhould alſo be well obſerved, not permitting the heat to become very weak in any long continuance, to ſtunt the growth of the plants in any conſiderable degree, in which when the heat of the bark is ſuddenly revived from a very reduced to a lively ſtate, the ſudden change is apt to run theſe plants to fruit at an improper age and ſtrength; likewiſe for the ſucceſſions, if in a ſeparate houſe, keep the fire-heat always moderate, rather lower than in the fruiting ſtove, not to puſh the plants much in winter to occaſion their running to fruit in that ſeaſon or the ſpring.

In ſome hot-houſes the pines are infeſted with vermin, ſmall inſects incident to theſe plants, which occaſion their becoming of a ſickly weak ſtate and ſtunted growth, aſſuming a diſtempered appearance; ſometimes occurring from a natural bad habit of the plants, and ſometimes through bad culture, either for want of a ſufficient regular moderate lively heat in the bark-beds, &c. to continue the plants in a free growing condition, or caſually by over heat in the early ſtate of the new made beds, which ſometimes heat ſo violently ſtrong as to ſcorch the roots and burn the earth, when not obſerving the neceſſary precaution of examining the temperature of the bed at firſt plunging the plants, in order, if the heat appears too great, or doubtful of ſuch, to plunge the pots only about one third or half way at firſt; for in either extreme, both in deficiency of heat in any conſiderable degree and continuance, and of too much, either to burn the earth, or the roots of the plants conſiderably in the bark-bed, or too violent fire-heat, and afterwards the heat ſuddenly declined, they become of a ſtunted ſickly nature, then, as in the animal creation, when the plants become diſtempered, vermin breed and increaſe the diſorder, that the plants make no progreſs; and the ſtunted growth ſometimes makes the ſucceſſion plants go into untimely fruiting, and the preſent fruiting plants to produce ſmall ill-grown fruit.

So that to prevent this malady as much as poſſible by means of culture, it is of very conſiderable importance to preſerve the bark-beds always in a regular, moderate, lively heat by the means adviſed, to continue the plants in a conſtant equal ſtate of moderately free growth, in which they will aſſume a ſtrong lively ſtate of health, that inſects ſeldom invade their leaves in any great degree.

But when the plants are unavoidably attacked by theſe vermin, different means are uſed to exterminate them; for which various receipts of preparations of powders, liquids, &c. have been propoſed, which may prove of ſome temporary uſe; alſo fumigating with tobacco ſmoak; waſhing the leaves with the decoction or infuſion of tobacco ſtalks, ſulphur, &c. with a bit of ſponge tied on the end of a ſmall ſtick, alſo a ſmall briſtly

bruſh in the ſame manner, or by plunging the whole head of the plants therein; or ſometimes, when conſiderably infeſted, the plants are ſhifted into entire freſh earth, the ſucceſſions particularly, ſhaking them entirely out of the old earth, prune the roots cloſe, waſh them clean, alſo the leaves well waſhed and cleaned as well as poſſible, then repot them in entire freſh earth, new prepare the bark-bed by addition of ſome new tan, fork the whole up together, and then plunge the plants; the bed will acquire a lively heat to ſtrike the plants afreſh to proceed in a free healthful growth, which will alſo contribute conſiderably to the extirpation and future prevention of the vermin.

Having thus far concluded the eſſential particulars in the management of the pinery compartments, and culture of the pine-apples therein, in their different ſtages of growth, and other concurring circumſtances relative thereto, I ſhall finiſh by giving ſome general obſervations on the principal articles of culture of other tender exotics occaſionally retained in the ſame preſervatory, and of ſuch hardy plants as are ſometimes introduced therein for forcing to early perfection.

In pinery-ſtoves or hot-houſes, where other tender curious plants are preſerved along with the pines, conſiſting frequently both of woody, herbaceous, and ſucculent exotics, often of various different and ſingular growths, and which being all planted or raiſed in pots, ſuited to the different ſizes of the plants, they may be placed upon ſhelves, tops of the flues, &c. or ſome particular more tender kinds plunged in the bark-bed where room, ſuch as the coffee-tree to forward its fruiting, or any curious flowering plants to have them flower in greater perfection; though moſt of the ſorts both of the woody, herbaceous, and ſucculent tribe aforeſaid, may be depoſited in any part of the ſtove, where moſt convenient, and will ſucceed by the ſame general culture as directed for the pine-apples, in regard to heat, air, water, &c. and as they will ſometimes require ſhifting into larger pots and freſh earth, not, however, regularly once or twice a year like the pines, ſome once in a year or two, others not ſo often, according to the ſize and

advanced growth of the different ſorts; it may be performed in the ſpring, March, April, May, or in autumn, about Auguſt and September, which is alſo a good ſeaſon for that work; generally ſhifted with the ball of earth about the roots; or any of a ſickly weak ſtate may be ſhaken wholly out of the old earth, the roots pruned a little, then potted in new compoſt, watered, and plunged in the bark-bed to ſtrike them afreſh; they may moſtly be potted in any common lightiſh rich earth, except the very ſucculent exotics, which ſhould generally have a dry, light, ſandy, or rubbiſhy ſoil, more ſuitable to their humid nature than rich mold, in which ſome of great ſucculency might be apt to rot; obſerving likewiſe, in watering the ſucculent plants, to apply it always ſparingly, as much moiſture at a time is apt to rot theſe kind of plants; but as to the woody and herbaceous exotics, they may be watered freely as required when the earth dries in the pots; and as the above different tribes of exotics are of various modes of growth, they propagate by ſeveral different ways, as by ſeeds, ſuckers, off-ſets, cuttings, ſlips, layers, &c. it may be effected in ſpring, ſummer, and autumn, as the different means occur; all in pots of light earth plunged in the bark-bed to forward them at the beginning, then may be placed in other pots.

Likewiſe, ſometimes in pineries, ſeveral hardy plants of the open ground are introduced for forcing, by aſſiſtance of the general internal heat of theſe compartments; both of flowers and eſculents.

Of the hardy flowering tribe, ſeveral ſorts of moderate growing plants may be admitted in winter and ſpring, both of the bulbous, tuberous, and fibrous-rooted kinds, all in pots of light earth, or ſome in water-glaſſes, ſuch as dwarf tulips, hyacinths, jonquils, polyanthus-narciſſus, iriſes, amaryllis, and other deſirable moderate ſhooting bulbous kinds, planted in pots, or ſome in root water-glaſſes, one root in each; alſo anemones, ranunculuſes in pots; and introduced any time from November, December, or January, till March; likewiſe pots of pinks, carnations, or other ſweet-ſmelling or ornamental fibrous-rooted flowering plants of moderate

rate growth, in January, February, and March; alſo pots of ſmall growing annuals, to flower early, as mignonette, balſams, candy-tuft, ten week's ſtocks, ſweet peas, &c. as likewiſe pots of roſes, ſyringas, double bloſſom cherry, hypericums, Perſian lilacs, &c. placing the whole in any convenient part of the hot-houſe, giving them neceſſary waterings, and they will flower agreeably at an early ſeaſon, from January till March or April.

And of the kitchen eſculents to force in a pine hot-houſe, the principal ſorts that ſucceed are kidney beans, ſtrawberries, cucumbers; planting early dwarf kidney beans in pots, three or four in each, and placed upon the top of the bark-pit wall, or front and end flues, in January, February and March, for early and ſucceſſional production; ſtrawberries two years old, or immediate bearing plants in pots, may be admitted in December, or principally in January or February, till March or April, to bear in long ſucceſſion, placed near the front and end glaſſes, or ſome plunged in the bark-bed; and cucumbers in pots or boxes placed in December, January or February upon ſhelves, near the top glaſſes towards the upper end, to enjoy the ſun more fully; giving the whole proper moderate waterings; and thus, by the other general culture of the pinery relative to heat, air, &c. in common with the pines and other exotics, they will produce early from about January, February or March, till April or May; or in the hot-houſe may introduce pots or boxes of ſmall ſallad, mint roots, tarragon, &c. to raiſe a ſmall ſupply in haſte, as alſo pots of early peas and beans, kidney beans, to raiſe a few early plants ſpeedily to plant in hot-beds, or in warm ſouth borders.—For the particulars of each ſort, in the above method of early culture, ſee each under its reſpective head, in the kitchen garden culture.

Having before intimated that beſides the pine-apple plants, above deſcribed, many other curious exotics are occaſionally contained in pinery-ſtoves, the following are ſome of the principal ſorts:

Aloes,

Aloes, African
Achras, or American marmalade
Adanſonia, or Æthiopian ſour gourd
Albuca, or baſtard ſtar of Bethlehem
Aletris
Amaryllis, or lily daffodil
Annona, or cuſtard apple
Antholyza
Arum
Arundo, or Bamboo cane
Ginger
Auricula tree
Bignonia, or trumpet flower
Cactus, or melon thiſtle
Torch thiſtle
Creeping cereus
Prickly pear
Swallow-worts
Apocynums
Shrubby aſter
Baniſteria
Baubinia, or mountain ebony
Caſſytha
Jamaica wild olive
Bixa, or American ornatto
Canna, or Indian ſhot
Capſicum, ſhrubby
Coffee tree
Dragon tree
Coral tree
Alligator pear
Gladiole
Maranta
Cedrela
Cocoa nut
Malabar nut
Nickar tree
Jatropha
Shrubby cotton
Lily thorn
Superb lily
Pomme roſe
Roſe periwinkle of Madagaſcar
Euphorbia, or ſpurge
Balſam tree
Pimento, or allſpice tree
Cinnamon tree
Crotalaria
Calabaſh tree
Papaw tree
Dwarf palm
Cape Jaſmine
Hernandia, or Jack-in-box
China roſe
Indigo
Locuſt tree
Mimoſa, or ſenſitive plant
Acacia, horned
Arabian jaſmine
Phyllanthus, ſea-ſide laurel
Paſſion flower
Winter cherry, Peruvian
Fingrigo
Barboes flower fence
Guava
Sapindus, or ſoap berry
Ironwood
Malpighia
Caper tree
Craſſula
Solanums, or nightſhades
Tournefortia
Mahogany tree
Lignum vitæ
Winterana
Soſhora
Stapelia
Saccharium, ſugar cane
Shrubby purſlane
Hura, or ſand-box tree
Ixora, or American jaſmine
Blood flower
Logwood
Commelina
Lily aſphodel
Pancratium, or lily narciſſus
Barbadoes cherry
Mammea, or Mammée apple
Martynia
Mangoe tree
Winter cherry
Lobelia
Rivinia
Jamaica pepper
Manchineel tree
Perennial globe amaranthus
Plumeria
Spondias
Tamarind tree
Ludwigia
Gum elemi
Lantana
American gooſeberry
Volkameria
Chironi
Duranta
Oxalis.

The above being ſome of the principal exotics occaſionally preſerved in pinery hot houſes, &c. a full liſt of the different genera and ſpecies, alphabetically arranged by their botanic and Engliſh names, may be ſeen in the *Garden Vade Mecum*, written by the author of this work, and ſold by Mr. Stockdale of Piccadilly.

EXPLANATION

OF THE

Neceſſary IMPLEMENTS, TOOLS, UTENSILS, and all other MATERIALS requiſite in the KITCHEN GROUND, and other Diſtricts of GARDENING.

AS in the different diſtricts of gardening various ſorts of tools, implements, and materials, are neceſſary for performing the numerous different works and operations, and having never been explained in any preceding publications of this kind, though ſo extremely requiſite, we preſumed it would be particularly eligible and acceptable to give a proper diſplay and deſcription of all the different ſorts, and their reſpective uſes in general gardening; which will contribute exceedingly towards facilitating the knowledge and thorough practical works of all the different branches thereof, in a peculiar manner not heretofore conceived, and will prove of very important utility in practice; and as the ſaid explanations could not with propriety be incorporated in the general work, it was judged moſt expedient to give them under a diſtinct head, explaining each ſort ſeparate, and their particular and general uſes, and methods of uſing them in the ſeveral works and purpoſes for which they are adapted.

Firſt follows a liſt of all the different ſorts under one point of view, ſhewing at once the requiſite implements, tools, and other materials for the kitchen garden, and others that are neceſſary in general gardening; afterwards a deſcription and explanation of the uſes of each ſort.

Spades,

Spades, different ſorts.
Rakes, different ſorts.
Hoes, different ſorts.
Dibbles, different kinds.
Garden forks.
Aſparagus forks.
Bark forks.
Plunging bark fork.
Potatoe fork.
Litter and covering fork.
Hot-bed fork.
Garden line.
Watering pots.
Meaſuring rods.
Garden trowel.
Wheel-barrows.
Watering barrow.
Watering pump engine.
Watering pipe.
Hand-glaſſes.
Garden frames.
Drawing frames.
Garden mats.
Oiled paper frames.
Reed pannels.
Reed hedges.
Garden baſkets.
Garden knives.
Pruning knives.
Graſting knives.
Budding knives.
Aſparagus knife.
Sieves, different ſorts.
Screen for ſcreening mold.
Mattock.
Pick-ax.
Garden hammers.
Shreds for nailing wall-trees.
Nails for nailing wall-trees.
Hand-ſaws.
Chiſſels.
Mallets.
Hatchet.
Hand-bills.
Hedge-bill.
Trimming hook.
Garden ſhears.
Edging ſhears.
Edging iron.
Turfing iron.
Racer, or rutter.
Beater.
Rammer.
Roller.
Graſs pole.
Brooms or beſoms.
Bonning ſtaffs.
Level.
Thermometer.

The above liſt, compriſing that of all the horticultural implements and other materials required in general gardening, ſhewing in one point of view what are neceſſary; next follows a deſcription and explanation of each ſort, different uſes, and in what diſtricts the reſpective ſorts are principally uſed and required.

SPADES, the utility of which is well known for the buſineſs of digging and trenching the ground, and for various other occaſions in ſpade-work, and which are of different ſizes ſuitable to different ſoils and purpoſes: the moſt common ſize for digging-ſpades, is from

from twelve to fourteen inches length in the plate, and ten inches wide; though in ſome places are commonly fifteen or ſixteen inches long, for digging light, deep, looſe ſoils, as in many of the market gardens near London; however, for the general part, the former are eligible for common digging in moſt grounds, and all general ſpade buſineſs. But it is alſo proper to have one or two of ſmaller ſizes, ſeven or eight to five or ſix inches wide, or leſs, for particular works in occaſional digging between ſmall continuing plants in narrow rows in beds, ſuch as ſtrawberries, and ſeveral of the perennial aromatic tribe, &c. and other ſmall digging, both in kitchen and flower gardens.

All the different ſorts of ſpades are ſold at the ironmongers, and at many of the nurſeries and ſeed-ſhops, from half a crown to five ſhillings, according to their ſeveral ſizes; that where much digging work, new ſpades will be required every year or two, eſpecially the common digging ſpades; for when worn ſhort, are not eligible for general digging: but in moderate gardens, a ſpade may ſerve ſeveral years.

RAKES, neceſſary for raking the ground, raking in ſeeds, and raking off weeds, ſtones, &c. may be properly of three ſizes; a common large long-headed wide-teethed rake, for the general buſineſs of raking, and raking in of ſeeds of moſt principal crops, and other raking work; a middle-ſized one, with teeth a little cloſer, for raking ſmaller compartments, or fine-raking for particular purpoſes, and for raking in ſmall ſeeds in beds or borders, or lightly ſmooth-raking the ſurface of beds, &c. and for raking off weeds between plants in rows; and a ſmall rake, with the head five or ſix inches long, for ſeveral ſmall occaſions, in raking between narrow rows of tranſplanted plants in beds, and other compartments, and to rake along narrow alleys between beds, &c.

Theſe rakes are formed with wooden heads, ſet with iron teeth, an inch and a quarter to an inch or leſs aſunder: others with the head and teeth wholly iron; though, as the teeth of theſe are apt ſoon to get looſe, I would prefer the wooden-headed rakes for general uſe.

A wood-

A wooden rake, the head and teeth entirely of wood, is occaſionally uſeful for raking in ſeed in light, looſe ground, when ſowed in large continued compartments; will be eligible in ſowing ſeveral large crops, as carrots, parſneps, turneps, ſpinach, radiſhes, onions, &c. alſo in raking off large looſe weeds in vacant ground, and between wide rows of plants.

Likewiſe a wooden rake is uſeful both in the covering ſeaſon in winter and ſpring, when covering early radiſhes, &c. with ſtraw litter, to rake it off lightly every morning in mild weather; alſo will be uſeful in pleaſure grounds, or where there is much ſhort graſs mowing, to rake off the mowed rough graſs before the ſweeping; alſo in raking off fallen leaves where they are thick, or driven in heaps in autumn.

Hoes of different ſizes are of great uſe in the kitchen garden for hoeing up weeds, hoe-thinning various continuing cloſe crops, looſening the ſurface of the ground between advancing young plants, and drawing earth about the ſtems of many ſorts to ſtrengthen and forward their growth, as cabbages, cauliflowers, ſavoys, broccoli, borecole, coleworts, beans, peas, kidney-beans, &c. and likewiſe for drawing drills, for ſowing many crops that are uſually, or occaſionally, cultivated in rows, as peas, kidney-beans, parſley, ſmall ſallading, chervil, ſpinach, coriander, beets, and ſeveral other ſorts occaſionally, as mentioned under their particular heads; alſo ſometimes drills for planting beans, potatoes, Jeruſalem artichokes, garlick, ſhallot, mint roots, &c. likewiſe for hoeing in pleaſure grounds, &c.

The proper hoes for general hoeing work are principally the common drawing kinds, to draw toward in hoeing or forming drills; and occaſionally a ſcuffling hoe to puſh forward in working; uſeful principally to cut down weeds expeditiouſly in wide ſpaces and vacant ground.

But for moſt principal hoeing-work the drawing hoes are moſt eligible, which ſhould be of three or four ſizes.

A large hoe of five, ſix, or ſeven inches wide for all common broad hoeing between all plants in wide rows, to

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cut up weeds and looſen the ground, and to draw earth about the ſtems of many ſorts of plants, and for drawing large drills for drill-ſowing and planting ſeveral crops, and ſometimes for hoe thinning ſome cloſe-raiſed crops, as turneps in particular, eſpecially in field culture to grow to a large ſize, and for other general hoeing.

A middling or ſmaller hoe, of three or four to five inches wide, for hoeing between plants in cloſer rows, and in ſmaller compartments of beds, borders, &c. drawing drills for various drill-ſowing crops; alſo for hoe-thinning ſome cloſe-raiſed kinds, as turneps, parſneps, beets, or occaſionally main crops of carrots, to full diſtances, or large crops of other thinning kinds, as below, and for hoeing flower-beds, borders, &c.

And a ſmall one-handed hoe of two inches, or two and a half wide, for ſmall-hoe-thinning any principal continuing cloſe-raiſed crops that are uſually thinned, as onions, leeks, carrots, parſneps, red beet, ſpinach, lettuce, radiſhes, large-rooted parſley, ſcorzonera, ſalſafy, ſmall crops of turneps, and ſome other plants that continue where ſowed, and that generally require thinning, as intimated under their proper heads. And this kind of ſmall hoe is alſo very convenient in hoeing between many other ſmall plants ſowed or planted in narrow rows, to cut up weeds and looſen the ſurface of the ground, which always proves beneficial culture; likewiſe this ſmall hoe is very eligible for drawing ſmall drills for drill-ſowing ſeveral ſorts of ſmall ſeeds.

Or a ſmaller hoe than the above, if only an inch and a half, will prove very uſeful in a firſt running over expeditiouſly many cloſe ſmall crops, both in a thinning order, and to cut up advancing young weeds, and to looſen the ſurface of the earth; as alſo to go over beds, borders, &c. of cloſely-pricked or tranſplanted plants in the ſame manner.

Or likewiſe, as a ſubſtitute inſtead of a ſmall hand hoe, an old table knife ſquare ended, and the end bent a little to one ſide, about an inch or an inch and a half in length in the bend, will be remarkably uſeful in quickly going over ſeveral ſmall cloſe crops, as onions, carrots, ſpinach,

ſpinach, &c. in a firſt ſmall-hoe-thinning, cutting up weeds and looſening the earth; as alſo between many cloſely tranſplanted crops, and others in beds, borders, and other compartments, in all of which it will be found exceedingly handy and convenient.

A ſcuffling hoe, commonly called a Dutch hoe, fixed in a long handle, with the edge ſtanding forward, to puſh before in the work of hoeing, may be uſed occaſionally to advantage in ſome particular hoeing buſineſs, ſuch as hoeing in wide ſpaces, or between wide rows of plants, to cut up weeds expeditiouſly before they grow very large without treading on the cut up weeds and looſened earth, to fix the weeds again, as the hoer, puſhing the hoe before him, walks backward from the hoed ground; and with which, while the weeds are ſmall or of moderate growth, a large ſpace of ground may ſoon be gone over in hoeing.

This kind of hoe having the middle part of the plate hollowed out or vacant, that in hoeing, the earth and weeds paſs through the open part, without being drawn in heaps; it is of different ſizes, from four or five to eight inches wide, and of which a ſmaller and larger will be convenient.

DIBBLE for the work of planting numerous ſorts of plants, roots, ſeeds, &c. is a ſimple, but moſt neceſſary, uſeful tool in the kitchen garden, &c. for ſetting all kinds of tranſplanting crops, ſuch as cabbage, cauliflowers, coleworts, ſavoys, broccoli, borecole, celery, endive, lettuce, artichokes, cardoons, cuttings, ſlips, and plants of many aromatic and pot-herbs, and ſeveral other eſculents; alſo beans, potatoes, garlick, ſhallot, Jeruſalem artichokes, horſe-radiſh, &c. and for various ſmall-planting in flower gardens, &c. and for which the moſt handy general planting dibble is that made of the tree or ſhaft of an old ſpade furniſhed with the top handle, and with the lower part a foot long, tapering gradually to a point at the end, and ſhod with a ſocket of iron ſix or eight inches; or in want of a ſpade handle, or any thing ſimilar for this purpoſe, a dibble may be made of any ſtraight ſtake, ſtick, or broomſtick, &c. of the above thickneſs and length, with

with a croſs handle at top for good hold, as well as to prevent the butt end of the dibble from hurting or bliſtering the hands, and if ſhod with iron, it will be more eligible for clean working: though dibbles, or ſetting ſticks, are often uſed without either top handle or being iron-ſhod, or inſtead of a regular handle, have one with a natural crooked or bent head for hand hold: however, an iron-ſhod dibble always makes moſt expeditious ready planting, the naked dibbles being apt to clog, and often clog up the holes, irregular for planting; but the ſhod ones, not clogging, make clean holes for the ready reception of the plants, &c.

Beſides the common planting dibble, it is proper to have a ſmaller ſetting-ſtick, for pricking out many kinds of ſmall young ſeedling plants at ſmall diſtances in nurſery beds, &c. to obtain ſtrength for final tranſplanting.

Likewiſe for planting ſome particular roots and ſeeds, it is eligible to have a large dibble, not narrowed to a point at the lower end, but rather blunt or rounded in that part, ſo as to make the holes of a proper width below, to admit the ſets and ſeed plump to the bottom, ſuch as potatoes, broad beans, horſe-radiſh ſets, Jeruſalem artichokes, bulbous roots, &c. for when planted with a narrow pointed dibble, the holes being too narrow at bottom to admit the ſets clean down, a hollow or a vacancy remains underneath.

But for potatoe planting large quantities in fields by dibble, a large long handled dibble is occaſionally uſed, ſhod with iron below, and with a croſs handle at top, for hold with both hands, to ſtrike the holes more readily and effectually in coarſe ground or a rough ſurface; or with ſometimes a ſhoulder of iron towards the lower end, at one or both ſides, five or ſix inches from the bottom, in order both to admit of aſſiſting in making the holes by a tread of the foot occaſionally in ſtubborn ground, and as a guide whereby to make the holes quickly all an equal depth; a boy or girl, &c. following after, drops a ſet in each hole.

GARDEN FORKS for a kitchen garden, &c. conſiſt of different ſorts, ſuch as common dung forks, aſparagus forks, bark forks, potatoe forks, covering forks, &c.

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A common garden dung fork is always uſeful and neceſſary in all dung work, both in forking dung for manure and hot-beds, and in ſeveral other garden occaſions in forking buſineſs; and for which purpoſes ſhould be moderate ſized, with three middling ſtrong roundiſh tines, a little bending forward, and tapering to a point; not large, clumſy, and heavy, where required for general uſe, but neat, light, and handy, generally with a ſtraight handle, convenient for any occaſion in all forking work, ſuch as working up, filling and ſpreading dung and long litter, either where dung is uſed for manure, long dung or ſtraw litter for covering particular articles, working hot dung for hot-bed making, likewiſe for forking off any large hoed-up weeds and coarſe garden rubbiſh; and is alſo uſeful in light fork-digging occaſionally between rows of particular plants, where the ground is hard bound, to looſen the earth, or ſometimes to looſen the earth in fruit-tree borders, &c. when trampled after ſpade-digging, and for ſeveral other ſimilar occaſions; alſo occaſionally in fork-digging aſparagus-beds in the ſpring dreſſing, and digging in manure in autumn, in want of a proper aſparagus fork, deſcribed below; as likewiſe ſometimes to ſerve in digging up potatoes and Jeruſalem artichokes, carrots, &c. in default of more proper forks for that purpoſe; alſo occaſionally for digging up young aſparagus plants for planting.

However, where required principally as dung forks for any conſiderable buſineſs and ſtrong heavy work, larger and ſtronger forks will be neceſſary; and if occaſionally with ſpade handles, they may be more convenient in ſome particular forking buſineſs.

ASPARAGUS FORK is for fork-digging aſparagus beds in the ſpring, to looſen the ground three or four inches deep, and likewiſe in autumn, at landing-up time, when neceſſary to manure the beds once in two or three years, to fork the dung into the ground a moderate depth; and which is made with three ſhortiſh flat tines, rounded at the ends, not to run too deep, to prick or wound the crown, or diſturb the roots of the aſparagus plants; may have either a common ſtraight ſhortiſh handle, or that of the ſpade kind.

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This kind of fork will alſo be uſeful in any other fork-digging work, in occaſionally looſing any hard bound ground between rows of plants, wall-fruit tree borders, &c.

A BARK FORK is neceſſary where there are bark-beds, hot-beds made of tanners bark, either in hot-houſes or elſewhere, for working and forking over the bark as required, which being a ſhort looſe material, requires a broad fork, with the tines moderately cloſe: it is made with five or ſix longiſh, narrow pointed tines, placed an inch and a half, or not more than two inches aſunder, to contain the bark readily in its ſhort looſe nature, which would fall through between the tines of a common dung-fork; and ſhould generally be fixed on a ſpade handle, or ſimilar to that of a ſpade, having an eye or hand-hold at top.

PLUNGING BARK FORK, a ſmall two or three-tined fork fixed in a ſhort ſtraight handle, to uſe with one hand in plunging pots in a bark-bed, for making apertures in the bark for their reception; and for which purpoſe, this fork, tines and handle together, need not exceed twelve or fifteen inches in length, and is very neceſſary on the above occaſion.

POTATOE FORK for digging up potatoes, is formed with three ſhortiſh, ſtraight, ſtrong flat tines, an inch and a half broad, the ends a little rounding, and terminating in a blunt point, that they may not wound or cut the potatoes but as little as poſſible, and is generally fixed on a ſhortiſh ſpade handle, as the moſt convenient for digging.

LITTER, and COVERING FORK, may be a kind of ſmall pitch-fork with two moderately ſhort prongs, fixed in a light ſtraight handle, five or ſix feet long; is uſeful in a kitchen garden, &c. on ſeveral occaſions, ſuch as forking up long ſtraw litter in covering up different articles in winter, ſpring, &c. as muſhroom-beds, early radiſhes, frame plants; alſo handy in forking hot-bed dung, and making dung hot-beds, and removing any long litter, and in ſummer in forking off large hoed-down weeds between rows of plants in wet weather, that they may not remain to grow again, or

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ſhed their ſeeds on the ground, and for other ſimilar uſes in forking work.

GARDEN LINE is always neceſſary in lining out ground, beds, borders, walks, and other compartments, and in planting various plants in rows, alſo in drawing drills by line, for ſowing ſeveral crops in that order, likewiſe in lining out trenches the proper width in trenching ground, alleys, walks, and many other purpoſes.

The proper ſorts are made of ſtrong well twiſted twine that will bear the weather without ſhrinking or ſlackening much, or breaking in ſtretching when extended to any conſiderable length; and to have this complete for ready uſe, ſhould have an iron or wooden frame, or reel, on which to wind it; but iron is beſt; may either be a ſingle ſquare frame, or double croſsways in an interſecting order, or round, made as light as poſſible, and to turn round on a ſpindle for expeditiouſly diſcharging the line to any length required, the ſpindle extended in length downward, tapering to a point, to fix in the ground in uſing the line, and with a ſeparate long iron pin, having an eye at top, in which to tie the other end of the line, and the lower end pointed to place in the ground where the line is to be extended.

The above is the moſt complete garden line for general uſe in principal gardens; but, in default of which, any other of a more ſimple kind may occaſionally ſerve the purpoſe.

WATERING POTS for watering particular crops in ſeed-beds, pricking-out-beds, and final tranſplanting, both at firſt planting, and afterwards in dry warm weather, in ſpring, ſummer, and autumn, &c. are very neceſſary utenſils in kitchen gardens, and all others; and which, if of two or three different ſizes, will be more convenient for different occaſions in watering;—common large pots for general watering any principal conſiderable crops;—middling ones for light watering any particular ſmaller compartments of ſmall young plants, ſeed-beds, &c.—alſo a ſmall handy pot for watering early young ſmall plants in hot-beds, and in frames,

ſrames, and other ſmall occaſions, when only very light and gentle waterings may be neceſſary.

Theſe watering pots are moſt commonly made of tin, furniſhed with a ſpout, proceeding from near the bottom in an aſcending direction, fully as high, or ſeveral inches higher than the top of the pot, with a roſe or round ſpreading head, the crown perforated full of ſmall holes, made to fix on the top of the ſpout, and take off at pleaſure, for different occaſions in watering; this ſhould generally be put on for watering any particular cloſe crops, to diſperſe the water to deſcend on the ground like rain, ſuch as in watering ſeed-beds, pricking-out beds, or plants cloſely tranſplanted in rows, and in all ſmall plants growing cloſe or near together, or ſuch as are ſowed in drills, &c. where thought expedient or convenient to water; but for plants ſeparately, or ſtanding more diſtant, ſingly, or plants in pots, &c. it on many occaſions may be eligible to have the roſe or noſle off in watering; ſuch as in newly planted-out articles in wide rows, as cabbages, cauliflowers, and various other kinds, planted diſtant, eſpecially where neceſſary to ſave water and time in watering conſiderable quantities, by giving it only to the earth immediately, and more effectually, about the roots of the plants; though in other caſes, where more cloſely planted, the watering with the roſe or head on may be more convenient and eligible, and by watering all over the heads of the plants and the ſurrounding earth, the water will fall more gently like a natural ſhower without waſhing the earth into the hearts, as is ſometimes unavoidable in haſty watering without the noſle, and therefore may prove more beneficial to the plants in general.

In the different watering pots the roſe or head of the ſpout ſhould have the holes therein cloſely perforated, or at ſmall regular diſtances, and neither made very large nor exceedingly fine, but of a moderate ſize, ſo as to diſcharge the water freely in gentle ſtreams, though larger in the common large watering pots for general uſe than in the middling and ſmall pots, in which the holes being finer, will be more convenient for light watering in beds of ſmall ſeeds, ſlender young plants, in beds, borders,

frames, &c. and in the ſeveral pots the head or noſle ſhould ſtand ſtraight with the ſpout, not inclined downward, as ſometimes made, which is inconvenient in not admitting of watering lighter or heavier on particular occaſions.

It would be convenient in the middling or ſmall watering pots, to have for the ſpout an additional detached long joint to add occaſionally to lengthen it, for watering any particular plants placed diſtant in beds, borders, hot beds, frames, or hot-houſes, &c.

All theſe pots are had at the tin ſhops, at five ſhillings to three and ſixpence and half a crown, or leſs; ſhould be painted red or lead blue, in oil colour, to preſerve them from ruſt.

Sometimes for conſiderable watering ſome particular cloſe crops, the kitchen gardeners about London have, beſides the common round heads or noſles for the ſpout, long tin or copper tubes, twelve to fifteen or eighteen inches length, bored full of holes on all ſides, and to fix occaſionally on the ſpout of the large watering pots, for watering more expeditiouſly ſome cloſe crops, as above obſerved, ſuch particularly as conſiderable plantations of ſtrawberries in May and June.

MEASURING RODS, five and ten feet long, marked into feet lengths, are uſeful and neceſſary in all gardens for meaſuring and dividing ground into compartments, as walks, borders, quarters, beds, alleys, and various other diviſions, &c. as well as for meaſuring the proper diſtances for ſowing and planting in rows ſeeds, plants, trees, and for meaſuring ground occaſionally by ſquare or long meaſure in rods, roods, or even acres, either for dividing into compartments of thoſe dimenſions, or in proportions as required, or where any ground is ſet out for digging, trenching, &c. by meaſurement per rod; and ſeveral other occaſions in gardening.

It may be proper, in extenſive grounds, to have two ſizes of meaſuring rods, a five and a ten feet length, for different occaſions in ſmaller and extenſive compartments; or in ſmall gardens a five feet rod only may be ſufficient; are generally made of a clean ſlip of inch and half deal, ſquared and plained to about an inch thick, and divided into feet lengths by croſs marks, and

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ſmaller ſhort marks between for half feet, for the greater readineſs and diſpatch in marking out any lengths or widths required; and one end may alſo have inch marks for particular occaſions.

They are uſeful in every garden; the five feet rod may ſerve for common uſe in meaſuring or ſetting out ſmall compartments, the ten feet one for any more extenſive occaſions.

WHEEL-BARROWS—one, two, or more, are indiſpenſably neceſſary in all principal gardens, for wheeling in dung for manure, and hot-beds, compoſts, &c. and in removing earth from one part to another, and carrying out rubbiſhy litter and refuſe of the garden, as decayed leaves, ſtalks, heaps of raked up weeds, ſtones, &c. and opening and filling up trenches, &c. and are of two ſorts, one a box barrow, made cloſe on every ſide like a box, and is the moſt commonly uſed; the other is open behind, where are two long ſhafts for handles; but the former having the ſides, ends, and bottoms, each moſtly of one ſeparate piece, generally elm board, ſtrongly framed together, are commonly ſtronger than the open barrow, which, being framed in a different manner, is generally lighter for wheeling, and eaſier to ſhoot out the materials than a box wheel-barrow, though not ſo generally uſeful on all occaſions: is made gradually widening from the head to the back part, where being open, it is convenient to fill or load.

The common wheel-barrows for general uſe ſhould be moderate ſized, not large, clumſy, and heavy, incommodious for a man to wheel along, or to ſhoot out the load; beſides, very large barrows are often cumberſome to wheel in ſmall compartments of a garden; I would therefore prefer a middling-ſized one, made ſtrong, neat, and moderately light, not too deep, and with the front or head-board ſloping a little forward over the wheel, that the load may bear lighter on the arms when heavy loaded, and be eaſier for a man to ſhoot out the materials, either ſideways, or over the wheel, as occaſion requires; and it is eligible to have the wheel of a moderate or middling height; if too high, would throw the load heavy on the arms, and difficult

to ſhoot it out, and if low, would bear ſo hard on the wheel, as, in ſoft or looſe ground, to make it ſink in and wheel heavily along; nor ſhould the wheel be too narrow in the rim, which would cut in, ſpoil the walks, or tear up the ground; ſo that it is eligible to have them with three inch wide ſellies: and if iron ſhod, will make them ſtronger, and not ſo liable to clog in wet ground.

However, in conſiderable kitchen gardens, it may be eligible to have one or more larger wheel-barrows for lighter wheeling of long looſe dung, and other light materials.

Or occaſionally in large pleaſure grounds it is proper to have a large light deep wheel-barrow to wheel away the mowed graſs, fallen leaves, and other looſe light litter.

WATER BARROW is uſeful in large grounds where there is conſiderable watering, and the water diſtant, on which to place a barrel-tub to contain a large quantity of water at once, to wheel to the compartments where watering is required, and there to take it out in common watering pots, to water where intended; which kind of barrow is framed with open bars at bottom, no ſides, but a high upright head next the wheel, ſtrongly framed in open bars, either ſtraight, or curved a little to fit the tub, which ſhould be of a moderate ſize; and if hooped with iron, will be more neat and ſtrong.

WATERING PUMP ENGINE may be uſeful in gardens in ſummer in watering all over any particular compartments, beds, or borders of plants, by placing it in the walks or alleys, and the receiver being filled with water, and with one hand working the pump, the other guiding the pipe, made to turn in any direction, and with the top piece ſpreading in a fanned manner, diſcharges the water very expeditiouſly, widely, and diſtant; likewiſe in gardens furniſhed with wall and eſpalier fruit trees, &c. which in dry hot weather ſometimes are foul, or infeſted with caterpillars, and other inſect vermin, this kind of watering engine will prove ſerviceable, by diſcharging the water upon them with conſiderable force, ſo as to waſh and refreſh the trees, leaves, and fruit, and beat off much of the inſects; and may alſo

be uſed in moderate ſtandard fruit trees, where over-run with caterpillars, &c. or the diſcharging pipe may alſo be occaſionally furniſhed with a perforated noſle or head, like that of a watering pot, to throw the water in ſtreams like a ſhower.

This watering engine is made of tin or copper of different ſizes and conſtructions, ſome being ſmall, to move about by hand, to any place required; others are more conſiderable, to move along upon a low wheel-carriage, each having the pump fixed upright in the middle of a cylindrical or oblong-oval tin or copper veſſel, or occaſionally a ſquare wooden one, or in a light barrel tub; and in either of which is fixed a long tin or copper pipe, with a ſpring leather one to ſcrew on at top, this terminated with a ſmaller taper diſcharging pipe, having either a ſpreading top-piece of tin or copper, aforeſaid, or ſometimes a perforated round head; and which engines being of ſmaller or larger dimenſions, the large ones are placed upon a light open frame, furniſhed with one, two, or three low broad wheels or ſmall rollers, to wheel or draw along the walks, &c. the leather pipe, being pliable, turns readily in any direction required, guiding it with one hand, and pumping with the other, diſcharges the water widely in a ſpreading order, and to a conſiderable diſtance; and according as the receiver is emptied, repleniſh with more water from a pond, river, ciſtern, or well, &c.

Theſe engines are made and ſold by moſt of the principal tinmen and braziers, alſo by ſome of the fire-engine makers; and ſome of which are moſt curiouſly and uſefully conſtructed, particularly in many parts of London; ſold, the ſmall hand ones at from eight, ten, to fifteen or twenty ſhillings, the larger complete ſorts from two or three to four or five guineas.

WATERING PIPE, for occaſionally watering plants in hot-beds, bark-pits, forcing-houſes, hot-houſes, &c. where placed in a diſtant part, not conveniently within reach of a watering pot, or incommodious to water therewith, is made of tin, compoſed of about three ſeparate joints, two feet long, and an inch to an inch and a half diameter, made to fix on one another, to lengthen or

ſhorten it as may be required; having the firſt or principal joint furniſhed with a ſmall funnel at the end ſideways, which, in watering, being turned upwards, and pouring the water into the funnel, it may be readily conducted to any particular pot or plant, as above.

HAND GLASSES, either ſquare, conſtructed of lead frames, and many ſeparate panes of glaſs fixed in the lead work, or bell-ſhaped, blown at the glaſs-houſes in one intire piece, are of great uſe in kitchen gardens, being commonly called hand-glaſſes as they are readily moved by the hand to place ſeparately over plants, to ſhelter tender kinds in winter and early ſpring, as cauliflowers, lettuce, ſmall ſallading, &c. and to forward them in growth at an early ſeaſon; likewiſe when done with theſe, are of material uſe for late or general ſummer crops of cucumbers and melons, planted or ridged out in open hot-beds in April and May. See theſe different articles.

With regard to the merit of theſe two ſorts of hand-glaſſes, the ſquare, or leaded glaſſes, compoſed of many ſeparate panes, as they can be readily mended when any of the panes of glaſs are broken, are, on that conſideration, by many principally uſed; but the bell-glaſſes are generally the moſt effectual in preſerving the plants in winter, as well as bringing them ſtronger and forwarder to perfection, eſpecially cauliflowers and lettuce in the natural ground, and cucumbers and melons in hot-bed ridges, aforeſaid, for late ſummer crops; they, however, when broken, are not ſo eaſily mended, except where they happen to crack or come aſunder in only one, two, or three places, they may ſometimes be joined with a cement of white lead, and with care will laſt many years.

There is alſo ſome material difference in the prices; the common ſquare glaſſes, made by the glaziers, are from two ſhillings to three and ſixpence each about London, cheaper in ſome other places, and the bells are blowed at the glaſs-houſes, and ſold at ten to twelve pounds *per* hundred, or in proportion; though ſometimes the ſeaſoned glaſſes that have ſtood the open air a winter or two are ſold for more, as ſometimes many of the new glaſſes are apt to crack and fly with the firſt ſevere froſt;

froſt; which when that happens, cement them with white lead, as above obſerved.

The bell glaſſes, as before intimated, are made at moſt of the glaſs-houſes; but at preſent few are ſo good as the London-made glaſſes; many, however, are brought here from Newcaſtle; but they have not the method, or do not temper the glaſs ſo well, being generally of a dull unclear nature, not admitting the rays of light and heat of the ſun ſo effectually as the London-blowed glaſſes, which in one place in particular are ſuperior to moſt others, and that is the great glaſs-houſe in Gravel-lane, near Blackfriars Bridge, Surry ſide.

Vaſt quantities of theſe hand-glaſſes are employed in the numerous kitchen gardens in the vicinity of London, ſuch as the conſiderable Neat houſe gardens near Chelſea, extenſive gardens at Batterſea, Lambeth, Newington Butts, Peckham, Jamaica Level near Rotherhithe, Hammerſmith, &c. and in ſome of which places ſeveral of the great gardens have two or three thouſand glaſſes each in their extenſive crops of cauliflowers, cucumbers, melons, &c.

But hand-glaſſes in ſmaller ſupplies are uſeful in various other purpoſes in gardening, both in nurſeries, pleaſure grounds, flower gardens, &c. in protecting ſome ſmall tender plants in winter, and to place over cuttings of many ſorts of plants to forward their rooting; and occaſionally, in want of garden frames, may be uſed in the ſpring in raiſing various tender plants from ſeed, as annual flowers, and many other ſorts; and for ſeveral other ſimilar purpoſes in gardening.

GARDEN FRAMES for the protection of tender plants in winter and ſpring, &c. and to place upon hot-beds for raiſing various tender kinds, and forwarding many hardy ſorts to early perfection, are of conſiderable utility in all principal gardens, being furniſhed with moveable top ſl ding lights or glaſſes to defend the plants, and admit the light and heat of the ſun, being of great uſe in kitchen gardens in defending ſeveral winter ſtanding tenderiſh plants, as young cauliflowers, lettuce, &c. raiſing early ſmall ſallad both in hot-beds and in beds of natural earth;

and in hot-beds, early cucumbers, melons, ſtrawberries, aſparagus, radiſhes, kidney-beans, peas, mint, capſicum, love apples, baſil, and ſeveral other articles; as alſo for raiſing and pricking many young hardier plants in the ſpring, both in hot-beds and beds of natural earth, defended with the frames, as cauliflowers, celery, lettuce, early cabbages, &c. and are likewiſe of great utility in moſt other diſtricts of gardening in a ſmaller proportion, in raiſing and protecting many curious and tender plants both of the herbaceous flowering tribe and ſmall ſhrubby kinds; as alſo to aſſiſt in the green-houſe and hot-houſe plants occaſionally, both in raiſing and defending particular ſorts.

Theſe frames are of different ſorts and dimenſions, conſiſting of one-light, two-light, and three-light frames, that is, ſmall frames for only one glaſs, four feet or four and a half wide from back to front, by three and a half feet the other way; a larger ſize for two-lights, four feet and a half wide by ſeven feet length; and the largeſt or moſt common frames for three glaſſes each, are four feet and a half wide and ten feet and a half long; and which latter are the principal ſorts for all general framing buſineſs.

Of theſe different ſorts of frames, the two former, conſiſting of the one-light and two-light frames, are neceſſary principally for ſeveral ſmall occaſions, ſuch as for placing on ſmall hot-beds, &c. deſigned chiefly as ſowing and raiſing beds in the early ſeaſons, to forward a few young ſeedling plants of particular ſorts in a ſmall growth, for pricking or planting into beds of larger dimenſions, either hot-beds under three-light frames and hand-glaſſes, as cucumbers, melons, &c. or ſome hardier plants for early pricking in the ſpring, either in gentle hot-beds to forward them in earlier growth for tranſplanting into the natural ground, or occaſionally for ſowing and raiſing ſmall quantities of the like ſorts in a ſmall forward ſtate for early pricking into ſheltered beds of natural earth or warm borders, as in the firſt early ſpring ſowed cauliflowers, lettuce, celery, early cabbage, red cabbage, broccoli; alſo ſometimes in raiſing a few tender annual flowers; and for which purpoſes, for early

ſowing

ſowing and pricking-out beds, one of each of theſe ſmall frames may be ſufficient in moderate or ſmall gardens, having one, two, three, or more of the larger or three-light frames, for the principal framing buſineſs in large hot-beds, and for ſheltering plants in natural beds in the full ground in winter; or for gardens of greater extent, or where there is a more conſiderable demand for the different articles, the quantity of frames will be larger in proportion.

But as for all conſiderable framing, the three-light frames, being the moſt proper ſorts for principal occaſions, are of great utility both in all hot-bed culture, and in natural beds in the culture of ſeveral general early crops, either in defending particular young plants in winter for planting out in ſpring, as cauliflowers, lettuce, &c. and in hot-beds of continuing crops to attain early perfection, as cucumbers, melons, aſparagus, ſmall ſallading, radiſhes, carrots, kidney-beans, peas, &c. and of which three-light frames, the ſupply neceſſary is according to the quantity of the different crops required; and may have in proportion from one, two, or three, to ſix, twelve, or more; and many of the market gardens about London have fifty or a hundred, and upwards.

Theſe frames are alſo of great uſe in a ſmaller proportion in nurſeries, flower-gardens, green-houſes, hot-houſes, &c. in raiſing many tender plants in ſpring from ſeed and cuttings, and in protecting many curious ſmall plants in pots in the winter ſeaſon, or during inclement weather.

The above different ſorts of frames, being conſtructed with inch and half deal boards well planed, are commonly made three feet and a half to four and a half wide, by three and a half to four feet, for the one-light frames, ſeven feet long the two-light, and ten and a half long the three-light frames; fourteen to eighteen inches, or not exceeding two feet high behind, for kitchen garden work particularly, by ſeven or nine to twelve or fifteen inches in the front, in proportion to the depth of the back, both ends correſponding, ſloping from the back to the front, all well jointed in the cloſeſt

manner; and in the two and three-light frames, they have croſs bars at top, three inches wide, to ſtrengthen them, and to ſupport the lights; the former have but one bar exactly in the middle, and the latter two, at equal diſtances from both ends and from one another, with grooves along the middle of each bar, to diſcharge the wet falling between the glaſſes; theſe latter being made to fit the top of the frames, one for the ſmaller, two for the two-light, and three for the three-light frames; all the wood work well painted a lead colour in oil, to preſerve them better from the weather and moiſture of the earth, to remain longer ſound; the glaſs work of the lights may either be ſquare panes laid in lead, well cemented, wind and water tight, or ſquares laid between thin bars of wood, lengthways, and well puttied, the ends of the panes lapping over one another half an inch, or little more, either puttied, or left open at the lappings, to diſcharge the condenſed moiſture and ſteam in hot-beds, that lodge in drops on the inſide of the glaſſes, without dropping on the plants, as formerly remarked; though, as a great deal of cold air will enter at the lappings, they may, if thought more eligible, be cloſed up with putty.

Where the frames are made ſome ſhallower and ſome deeper, from fourteen to eighteen inches and two feet behind, with the front and ends in proportion, as above intimated; the ſhallower frames are eligible both for ſome early hot bed work, and in protecting ſeveral ſmall young plants in winter and early in ſpring, that the plants may be nearer the glaſſes, to enjoy the ſun's heat more effectually and beneficially in thoſe ſeaſons particularly, and in ſeveral ſorts will be leſs liable to draw up weak in their ſlow early growth, than in deeper frames, in which the plants, by aſpiring ſtill upwards towards the glaſſes, ſometimes run up feeble, particularly in ſeveral kitchen garden articles, as early radiſhes, ſmall ſallad, lettuce, carrots, early lettuce to cabbage in winter; ſo alſo in defending young plants in natural beds in winter, ſuch as young cauliflowers and lettuce, the ſhallower, or middling ſhallow frames are moſt proper; likewiſe in hot-

bed

bed forcing of earlieſt cucumbers and melons, aſparagus, ſtrawberries, kidney-beans, peas, &c. the moderately deep frames will be moſt eligible; though for hot-beds in the more advanced ſeaſon in ſpring, when plants grow naturally quicker and ſtronger, the deeper frames will be moſt adviſable, particularly for the main crops of frame cucumbers and melons, and more eſpecially the two latter, to admit of containing ſome conſiderable depth of earth, as explained under their proper articles.

Likewiſe in general gardening, a particular ſort of deeper frames are neceſſary for the protection of many tenderiſh plants in pots in winter, both to defend many ſorts of curious young plants of the evergreen tribe, as the magnolia, arbutus, &c. alſo ſome choice deciduous ſhrubby kinds in their tender infant growth, as well as many of the herbaceous flowering perennials and biennials; and ſometimes to contain ſeveral of the hardier green-houſe plants, ſuch as myrtles, &c. in the winter ſeaſon, in want of ſufficient green houſe room; and in the flower garden, to defend ſome of the more deſirable hardy flowering perennials in pots, liable to ſuffer in ſevere froſts, ſuch as double bloody wall-flowers, double ſweet-williams, double ſtock-gilliflowers, and many other ſuch like kinds; and which frames may be from two to three feet deep behind, by twelve or fifteen to eighteen inches or two feet in the front.

Alſo, as an aſſiſtant to pineries, one or more deeper frames are of utility to ſerve as nurſery frames for young pine-apple plants of the preceding year's crowns and ſuckers, or yearling plants, to place on a bark or dung hot-bed, to contain them at particular times in ſpring or autumn, or occaſionally in winter, in default of ſufficient room in the ſucceſſion pinery or fruiting houſe, &c. See the culture of the *Pine apple*.

A DRAWING FRAME, for drawing ſome kinds of tender annual flowers to a tall growth, as giant cock's combs, tricolors, &c. is either one or two deep frames, from two feet and a half to a yard or four or five feet behind, by eighteen inches to a yard in the front, to receive the plants from common frames in their pots, or with balls, when of ſome advanced growth, and placed

firſt in the ſhallower drawing frame till they have advanced to the glaſſes, then removed into the deepeſt frame, each of which frames being placed on a hot-bed ſunk in a trench half a yard or two feet deep, with earth or tanner's bark at top, in which to plunge the pots; or if a bark hot-bed, plunged in the bark without any earth thereon.

Or ſometimes theſe drawing frames conſiſt of three ſeparate parts, to place one upon the other, according as the plants advance in height, one of which being conſtructed in the manner of a common frame, two feet and a half depth behind, by half a yard to two feet before, and furniſhed with glaſſes at top; the others made of an equal depth on every ſide, twelve to fifteen or eighteen inches, placing the firſt frame on the hot-bed; and when the plants reach the glaſſes, remove this, ſet one of the others on the bed, and place that firſt uſed and its glaſſes upon this additional frame; and if neceſſary, in the further advance of the plants, to add another frame in the ſame manner upon the firſt additional one, and place the frame having the glaſſes ſtill uppermoſt; and by thus gradually deepening the frame, will prove more effectual in this buſineſs than by uſing a frame the full depth at once.

But the beſt drawing frame for annuals, or drawing any other flowering plants tall, is a ſort of glaſs caſe conſtructed againſt a ſouth wall, ſix feet wide, or more, ſix to ſeven or eight feet high behind, upright glaſs work in front, five or ſix feet high, with ſloping glaſſes from the top of the front to the back; ends alſo glaſs: internally have a pit for a hot-bed, four feet wide, and half a yard or two feet deep, to be filled with hot dung for a hot-bed, with earth or bark at top; or a bark hot-bed; and in which the plants, previouſly raiſed in common hot-beds and frames to a foot high or more, and plunged in this, will advance to the proper height without farther trouble, and in a handſomer growth than in deep dark frames.

MATS or BASS MATS are uſeful in the kitchen gardens on many occaſions, in covering to defend from cold

cold in winter, &c. and ſhade from the ſun in ſummer various tender and young plants.

They are of great utility in all hot-bed work both in winter, ſpring, and ſummer, to cover the glaſſes every night and rigorous weather in winter and ſpring; or in tendereſt plants, as cucumbers, melons, &c. the night covering continued till May or June, and ſometimes to ſhade theſe plants from the ſun in hot weather in ſpring and ſummer; likewiſe in defending from froſt ſome ſorts of young winter-ſtanding plants in natural beds, under frames, and hoop arches, as cauliflowers, lettuce, &c. and in raiſing ſome ſmall crops in ſeed and young plants early in the ſpring, in beds, without frames, either beds of natural earth or hot-beds, the beds arched over, may be defended with the mats of nights and cold weather, ſuch as beds of early ſallading, radiſhes, lettuce, early kidney-beans, peas, mint, ſeedling ſpring-ſowed cauliflowers, celery, &c. as likewiſe for ſhading from the ſun ſeveral ſorts of ſmall young pricked-out plants in hot weather in ſummer, cloſely planted in beds, having ſome mats drawn over in hot ſunny days, protects them from being withered or ſcorched, till they take good root, as in pricking out young cauliflowers, broccoli, cabbage, celery, &c. cloſely in ſmall beds, to gain ſtrength for final tranſplanting; alſo occaſionally to ſhade ſeed-beds of ſome particular ſmall crops in very hot ſcorching ſunny weather in ſummer or autumn, till the plants come up, and in ſheltering ſuch beds from cold in winter and ſpring, both before and after the plants are above ground.

Mats are alſo very ſerviceable in ſuch kitchen gardens, &c. as are furniſhed with wall-trees, to defend from froſt ſome of the more deſirable early ſorts, when in bloſſom and young fruit in March and April, by nailing them up of nights, &c. when froſty weather.

They are alſo uſeful more or leſs in nurſeries, and moſt other diſtricts of gardening.

Theſe mats, for the above ſeveral purpoſes, are ſold at moſt of the nurſeries and ſeed ſhops, from ſix to nine, ten, or twelve ſhillings per dozen, according to the ſize, ſmall, middling, or large; but the large Ruſſia

mats

mats are preferable for moſt kinds of garden buſineſs in covering, &c.

And ligatures or ſtrings of baſs mat are uſeful in tying many articles in gardening.

OILED-PAPER FRAMES are deſirable in late full crops of melons, and occaſionally cucumbers, that are ridged out in April and May in hot bed ridges, generally firſt under hand-glaſſes till the latter end of May or beginning of June, when the plants have filled the glaſſes, which being then removed, and the paper frames placed over, to remain conſtantly night and day all ſummer; or occaſionally, in want of hand-glaſſes, may place theſe frames over the beds at once as ſoon as the plants are ridged out, the middle or latter end of April and in May; and which frames being made either ridge-form, like the roof of an houſe, or arched, like the tilt of a waggon, and paper paſted over, and oiled with linſeed oil, which renders it proof againſt rain, and pellucid to admit the rays of light and ſun heat moſt agreeably, and at the ſame time keep out cold and wet, and afford an agreeable ſhade in hot ſunny weather; that, in the whole, the plants thrive exceedingly, and produce excellent crops of fine fruit, ripening in July, Auguſt, September, the melons; and cucumbers to cut in May, June, &c.

Theſe paper frames may be ten or twelve feet long, four and a half wide, and three feet or three and a half high, conſtructed of thin ſlips of deal; forming firſt a bottom frame the above width and length, from which carry croſs ribs or rafters a foot aſunder, either ſtraight, meeting in a ridge at top, or hoop rafters archways, ſtrengthened by a ſlip of wood extending along the middle at top, under the rafters; and with packthread or twine drawn lengthways the frame, and round each rafter, continued in ſeveral lengths a foot diſtance, and then croſſways between the ribs interſecting the other lines, ſerving both to ſtrengthen the frame and ſupport the paper more effectually; then having ſome large demy or foolſcap paper, paſte this ſheet and ſheet on the outſide of the frame over the rafters and lines, in a neat regular manner; and when this is fully dried, being furniſhed

with ſome raw linſeed oil, that boiled being apt to harden and render the paper brittle, and having a ſoft painter's bruſh, let the paper be bruſhed all over the outſide lightly with the oil, placing the frames afterwards under cover till the oil is gradually and thoroughly well dried into the paper; and may then be uſed for the purpoſes above-mentioned. See *Cucumbers* and *Melons*.

In making the above frames, if two ſmall pannels, eighteen inches wide, are made on one ſide, towards each end, to open on hinges outward to fall back, reſting on the other part, it will be convenient in examining the ſtate of the plants, giving neceſſary waterings, admitting air at firſt, and for performing other neceſſary culture, without turning up or removing the whole frame on thoſe occaſions. See *Melons*, &c.

The wood work of theſe frames will laſt ſeveral years, but the lines and paper will generally require to be renewed annually.

Sometimes theſe oiled-paper ſhelters are formed of a more ſimple conſtruction, by placing hoop arches ſingly acroſs the beds, both ends thruſt into the ground or ſides of the ridges, a foot diſtance, pack-threaded as above; the ſheets of paper paſted together in proper widths, to reach over the arches, and in ten feet lengths, and oiled, are then drawn over the beds upon the hoops, each length lapping a little over the other, and faſtened down by lines extending along the bottom on each ſide, and pegged down at eligible diſtances.

Reed Pannels and Reed Hedges for Shelter, &c.

REED PANNELS, formed with the common marſh reeds, when at full growth and dry, placed cloſe, about an inch and half thick or more, faſtened between poles or thin ſlips of deal at each end and middle, ſix or eight feet long, and four or five feet high, cut off even at top, are uſeful in winter to defend young plants of cauliflowers, lettuce, &c. in narrow borders under walls or hedges in froſty weather, by placing them ſlanting to the wall over the plants, will afford a good protection in breaking off the keen edge of cutting froſts; or when very rigorous, may alſo ſpread long ſtraw litter over the pannels.

Likewiſe theſe pannels, being ſometimes made ſix or eight feet high, are occaſionally uſed in ſpring to defend wall-trees of peaches, apricots, &c. when in bloſſom and young fruit, by placing them a little ſlanting to the wall againſt the trees in froſty weather.

REED HEDGES are ſometimes uſed in large open expoſed kitchen grounds to form expeditious, or immediate temporary, or continuing ſhelters, to divide and defend particular compartments to break the force of cutting blaſts and tempeſtuous winds, and to form under them warm and ſhady borders; and are ſometimes fixed up in pannels croſſways of broad wall-tree borders at twenty feet diſtance, both to afford ſome ſide protection in cutting froſty weather to the trees in ſpring, when in bloſſom and fruiting, and to early crops on the borders; alſo ſometimes as fences to incloſe and ſhelter melon and cucumber grounds, both as cheap quickly-erected fences, to break off cutting winds and cold blaſts, and as being in ſome caſes preferable to walls or palings, in that they break the force of ſtrong winds without reverberating ſo much as in walls, &c. they are alſo ſometimes uſed in forming ſpeedy and cheap outward fences in kitchen grounds; and are uſed in nurſeries both for ſhelter and training young wall-trees: And for which different fences they are formed in pannels, by placing the reeds cloſe between long horizontal ſlips of wood nailed to upright poſts, driven in the ground ſix to eight or ten feet diſtance, and five to ſix or ſeven feet high.

Theſe kinds of fences are formed with quantities of the common marſh reed, as above obſerved, cut in autumn when at full growth and dry; to be obtained plentifully in moſt places near any conſiderable marſhes contiguous to rivers, &c. and in many places where they abound in capacious marſhes by river ſides, they are cut at the proper ſeaſon, tied in large bundles, and ſtacked up, &c. for ſale to the gardeners for the above purpoſes; and for which, and other occaſions, vaſt quantities are brought to London in barges by water, from the marſhy grounds up and down the river Thames, and depoſited in warehouſes by the water ſide.

To

To form theſe reed hedges, ſtout poſts are fixed in the ground ſix to eight or ten feet diſtance, and from poſt to poſt, on each ſide, are faſtened long poles or ſlips of deal, two or three inches wide, in a double range near the top and bottom and along the middle, or only the upper and lower range at firſt, and between each double range of rails the reeds are to be placed, large ends downward, gathering them up even at the lower end, ſmall parcels in the hand at a time, placing them between the rails cloſe together, about two inches thick, reſting the lower ends a little in the ground; proceeding thus along each pannel between poſt and poſt, and then either with long nails driven through both the rails in each range at eligible diſtances, to confine the reeds tight and cloſe in their places, or with ſtrong oſier ſhoots, or old tarred rope-yarn, tie the rails together tight up to the reeds, to fix them properly in the above order; and if the hedge is five or ſix feet high or more, if middle rails were not placed at firſt, it ſhould now be done, and nailed or tied in the above manner; afterwards the ſmall top ends of the reeds cut off even, equal with the top of the poſts, with a knife or garden ſhears.

Thus theſe reed hedges may be expeditiouſly formed, cheaper than any other cloſe fencing of walls or paling, and will laſt in good order ſeveral years.

Sometimes the top is defended with a coping of deal three or four inches wide, both to keep off the falling wet, to preſerve the reeds longer ſound and equal at top, and to give the hedge a neater appearance; and likewiſe ſometimes the lower ends of the reeds reſt on a narrow plate of wood, raiſed a little above the earth, to preſerve them regular, and longer from rotting.

BASKETS of oſier, wicker-work, and chip baſkets, different ſorts are neceſſary in conſiderable kitchen gardens for gathering the produce for the kitchen or market, &c. ſome ſmall, others middling and large; ſome flat and ſhallow, larger and ſmaller kinds, for ſallad baſkets, ſeveral ſorts of ſmall herbs and fruits; others, more or leſs hollowed concavely, ſhallower and deeper, ſmaller and larger, for different occaſions in gathering any common ſmall crops for family ſervice,

in

in roots, herbs, ſallads, pulſe, and other herbaceous eſculents, and different ſorts of fruits; and if ſome of theſe baſkets have bowed croſs handles, will be more convenient; alſo larger, round, deep half buſhel and buſhel baſkets, for gathering larger ſupplies of more bulky kinds, as cabbages, cauliflowers, and other cabbage kinds; as alſo peas, beans, and many of the large root eſculents; or for ſerving a family kitchen, a large baſket may contain ſeveral different ſorts of the common eſculents to carry in at once; but all principal fruits, for immediate ſupply of the table, ſhould be gathered in ſmall or moderate ſized ſhallow neat baſkets, that they may not be bruiſed by many lying upon one another, and that the fruit may appear to the beſt advantage, or the choicer eating fruits gathered each ſort in ſeparate ſmall baſkets, and placed in a larger flat one, to carry into the houſe; and for gathering larger quantities of ſtandard tree fruits, and others for baking, boiling, &c. any common baſket is eligible; or for gathering the keeping fruits of apples, pears, &c. to houſe for winter, ſhould have either a common deepiſh wicker baſket, with a croſs handle, or a largiſh hand flag baſket, with two ſide handles, hung by a belt, &c. round the perſon, in the work of hand-gathering in ſtandard trees, with, for large quantities, larger deep wicker baſkets or hampers, in which to empty as gathered, and when full to carry into the fruitery.

But in the market grounds they have many different ſorts of baſkets for gathering and carrying the produce to market, ſmall, middling, and large, ſome flat and ſhallow, others deeper, ſome round and deep; having common larger or ſmall baſkets for gathering, and the gathered ware is packed in baſkets of different ſorts and ſizes for market, denominated ſieves, junks, maunds, boats, flats, &c. as in the numerous and very conſiderable kitchen grounds round London; and for muſhrooms and ſtrawberries, they carry them to market in ſmall upright narrow chip baſkets, called pottles, and placed many together in a large flat boat baſket, to carry on men or women's heads ſafe without bruiſing, eſpecially ſtrawberries, raſpberries, mulberries, earlieſt cherries, &c.

&c. and of which immenſe quantities are ſent from the neighbourhood of Hammerſmith and Brentford, &c. near London, generally carried by clean, decent, young girls, on their heads, walking commonly at a great rate, ten, twenty, or thirty together in a ſtring, after one another, from the ſame garden, to Covent Garden market, or alſo to the diſtillers with raſpberries, &c.

Other fruits are commonly brought to market in different ſorts of round, moderate deep, and large deep baſkets, as quarter, half, and full ſieves, for gooſeberries, currants, cherries, plums, peaches, apricots, grapes, mellow pears, apples, &c. and larger quantities of the common fruits are brought in half buſhel, buſhel, and two buſhel baſkets, ſieves, maunds, as apples, pears, common plums, walnuts, filberts, &c. and ſome early ſorts, as cherries, plums, figs, currants, gooſeberries, come in firſt in ſmall pottle baſkets.

In large pleaſure grounds, where there is conſiderable ſhort graſs mowing, a large, deep baſket is uſeful for carrying off the mowed graſs in large quantities with greater diſpatch than in wheel-barrows, and which baſket may either be made with two top handles to receive a long pole, to carry between two men, or placed upon an open wheel-barrow; is alſo uſeful in carrying off raked-up heaps of fallen leaves when in large quantities in autumn.

KNIVES, for kitchen garden uſe, are neceſſary both for gathering many productions, as in cutting cabbages, cauliflowers, and all the cabbage and large colewort tribe, and many other crops, as well as for trimming ſome ſorts after gathering; likewiſe for trimming the roots and tops of many plants in the work of pricking-out, planting, &c. and ſeveral other occaſions, and for which purpoſes a common, large, or moderate ſized gardener's knife, may be ſufficient; not a claſp or folding one, as the groove in the handle is apt to clog up, and beſides is inconvenient in opening on every occaſion; ſhould therefore be fixed ſtraight in a ſolid handle, the blade but moderately hooked at the point, having a ſheath to fit it not too tight, but to admit of readily drawing out and ſheathing, wearing it commonly

commonly in a breeches ſide-pocket, taking it out and in, as occaſion requires, without always taking out the ſheath; eſpecially as it, on many occaſions, is frequently wanted in a ſhort ſpace of time.

But in kitchen gardens, &c where there are wall-trees, eſpaliers and other fruit-trees, requiring pruning, which in the two former is moſt neceſſary conſtantly every ſummer and winter, and occaſionally in ſtandards, and in which caſe one or two pruning knives will alſo be requiſite for common or general pruning, a moderate or ſmaller middle-ſized knife is moſt eligible, nearly of the above mentioned deſcription, the blade not too broad, the point but ſlightly hooked, and narrowing to the extremity, both that it may cut clean at once, and be readily introduced between ſmall cleſts and forkings of the branches frequently occurring in the operation of pruning; likewiſe a ſmaller, narrow knife for light pruning particular moderate ſhooting trees, productive of numerous cloſely placed ſhoots, as peaches, nectarines, apricots, Morello cherries, &c. in which the ſhoots being generally more moderate than in ſeveral other kinds, and the mother branches ſmaller, the pruning them can be more readily and accurately performed with a ſmaller knife, narrowing and almoſt ſtraight pointed at the edge, or as ſlightly hooked as poſſible, rounding off a little from the back to the point, which in pruning can be moſt conveniently admitted between cloſely-placed ſhoots, narrow forks and cleſts, as above obſerved, and will be found more handy than a large hooked knife in general pruning of moſt kinds of wall-trees and eſpaliers: however, for cutting out large branches, old hard ſtumps, large decayed ſpurs, and dead wood, a common large pruning knife is eligible; likewiſe where there is conſiderable pruning, as large old branches will caſually occur, that require cutting out, probably too thick, hard, and ſtubborn, to yield to a common pruning knife by hand cutting, one of a large, ſtrong ſize is more proper for that occaſion, to uſe either by a ſtrong cut with the hand, or where this is not practicable, uſe the nailing hammer, placing the edge of the knife a little ſloping upward on the part where

where the amputation is intended, and ſtriking the back with the hammer, it will take it off with a clean ſloping cut, and, by the ſame means, may cut off hard knots, old rugged ſtumps, ſnags, and ſpurs, &c.

Likewiſe knives for grafting and budding; and for which a common pruning knife may be eligibly uſed in grafting; and for budding, a ſmall nearly ſtraight-pointed knife is more convenient, having the lower part of the haft flat, thin, and rounded at the end, wherewith to open the bark or rind of the ſtock on each ſide of the perpendicular cut, for the admiſſion of the bud.

An aſparagus knife, for cutting aſparagus, is made with a longiſh, ſtraight, tapering blade, ſix inches long, the edge fine-teethed like a ſaw, the blade narrowing to half an inch or leſs at the end, ſloped off gradually from the back to the point, and fixed in a ſhort, wooden handle, and which is uſed in gathering aſparagus by thruſting it down cloſe to each ſhoot; and with one downward cut, ſaw them off ſeparately two or three inches or more within the ground; or, for this purpoſe, any ſtraight, narrow-pointed knife will be eligible.

SIEVES of wire-work are neceſſary in a kitchen garden, &c. for ſifting earth, compoſts, dry rotten dung, &c. fine, from ſtones and hard clods, for particular occaſions, ſometimes for hot-beds, pots, and ſmall beds in the open ground in ſowing ſome ſmall ſeeds, and planting young tender plants; and alſo for ſifting earth over ſome particular ſmall ſeeds after ſowing in ſmall portions in beds, &c. as early ſmall ſallading of creſſes, muſtard, &c. in frames and open beds in winter and ſpring; the beds being firſt ſmooth-raked, the ſeed then ſowed on the ſurface ſmoothed down evenly with the back of the ſpade, and the earth then ſifted over it a quarter of an inch, or the ſallading ſeed but juſt covered; they are alſo uſeful occaſionally for ſifting gravel, ſometimes to have it finer and coarſer for different gravel walks as may be required; as likewiſe for ſifting bark in hot-houſes, and other bark-beds, as obſerved under the article *Screen*.

Sometimes, in want of wire ſieves, wood or chip-work ſieves may be occaſionally uſed for the above purpoſes;

poſes; but theſe clog up much in ſifting, and ſoon wear out; they, however, will ſerve as ſubſtitutes for wire ones in moderate ſifting work.

Likewiſe ſeed ſieves for ſifting and cleaning ſeeds, after being gathered when ripe and threſhed out, to clear them from the huſks, &c. are particularly neceſſary in all gardens where any conſiderable ſupply of ſeeds is uſually ſaved; and of which they are of different kinds, in being finer or more open wire worked in different degrees, ſuitable to ſmall, middling, and larger ſeeds, and for firſt, ſecond, and final ſifting; alſo coarſer ſieves of wood chip work of different ſizes for large ſeeds, as peas, beans, kidney-beans, &c.

The above different kinds of ſieves are made for the ſeveral purpoſes, and may be had, the wire ſieves, at all the wire-workers where bird cages and other works in wire are made and ſold, and the wood ſieves are commonly ſold at the turnery ware ſhops and baſket-makers, &c.

A SCREEN made of ſtrong wire or thin iron rods fixed longitudinally in an oblong wooden frame, is uſeful in principal kitchen gardens for expeditiouſly ſcreening coarſe earth, compoſts, and dry rotten dung, &c. as obſerved in the article *Sieves*, to clear out ſtones, hard lumps and clods, to render the materials finer for particular occaſions, both ſometimes in hot-bed work, and ſome ſmall natural beds for ſome particular ſeeds and plants; alſo for pots of green houſe and hot-houſe plants, and other purpoſes; likewiſe for ſcreening bark of old bark-beds in hot-houſes, forcing-houſes, or any bark-pits, when the heat is exhauſted, and intending to renew the beds with freſh tan, in autumn, &c. by firſt ſcreening all the old, carrying out the ſmall earthy parts that paſs through the ſcreen, retaining the larger bark that remains, adding the new thereto, and the whole forked up together in a mixed order; this ſcreen is alſo uſeful ſometimes in ſcreening coarſe gravel, to obtain ſome finer for particular gravel walks, or coarſer for others, as before ſuggeſted in ſieve ſifting.

This is commonly about four to five or ſix feet long, and two feet to a yard or more wide, a wood work frame forming

forming the ſides, top, and bottom, the ſides and top being ledged or raiſed four to five or ſix inches, and ſtrong large wire, or thin iron rods, ranging lengthways at ſmall diſtances, ſtrengthened behind by larger wire or ſmall iron rods fixed acroſs, and at the back part furniſhed with either one or two ſupporters of wood or iron, hung by hinges or hooks above, to open more or leſs outward below, to have the ſcreen in a proper inclined poſition, more or leſs ſloping in the work of ſcreening, for the ſmall materials to paſs quickly through, and the coarſe to run down; or without fixed ſupporters, may be propped up with any ſtout ſtake placed behind, to raiſe or fall it to the requiſite poſition.

Thoſe ſcreens formed of wire are made and ſold at the wire-workers or bird-cage makers; or thoſe conſtructed with ſmall iron bars, any carpenter who makes the frame may nail them on with great facility eligible for the purpoſe.

But ſome are alſo occaſionally made wholly of wood-work, the ſcreen bars made ſquare about half an inch thick, and placed corner or angleways before and behind.

Mattock or Stocking-axe for aſſiſting in breaking up hard Ground, &c.

MATTOCK or ſtocking-axe, both ends axe-form, ſtanding contrary ways, may be uſeful occaſionally in a kitchen garden and other garden diſtricts, in aſſiſting to break up any hard ground both at top and bottom of trenches, &c. ſtocking or grubbing up large roots of old trees, when neceſſary, breaking up hard gravel walks and other compartments, where too hard or ſtubborn for ſpade work; uſeful in digging up liquorice root, and in digging any deep ditching and ha-ha work, &c. and in ſtocking up any old outward hedge-work roots, and in levelling down banks, where occaſion; alſo to aſſiſt in removing large trees with balls of earth for tranſplanting; likewiſe in digging deep drain-work, where required, in draining copiouſly wet ground, and in excavating hard ground, where not pliable to the ſpade; and in ſinking at ſome conſiderable depth for any kind of water compartments in baſons, ponds, rivers, &c. though

though in ſome caſes on the above occaſions in very hard, ſtony, or compact gravelly ſoils, a pick-axe, one end pointed, as deſcribed below, will be more eligible than a mattock.

However, a mattock is more generally uſeful in moſt garden occaſions where ſtocking or grubbing work is required; and for which purpoſes this tool ſhould have the head of iron work, two feet long, with an eye in the middle for the helve or handle, the wings or ſhanks both made flat, contrary ways, on each ſide of the eye, with the ends axe-form, two different ways, according to the flattening of the ſhanks, for more convenient uſe in ſtocking, grubbing, or cutting in different directions, as required; is ſold at the ironmongers ſhops, and moſt country ſmiths and others make them readily.

Pick-axe for picking and ſtocking up hard Ground, &c.

PICK-AXE, one end axe-form, the other piked or pointed, is ſometimes required in ſome garden occaſions, in breaking up any very hard ſtony and gravelly ground, gravel walks, digging gravel for walks, &c. uſing the piked end, whereby the work can be more convenient and effectually performed than with a mattock, axe-form at both ends.

This pick-axe, having the head iron work, two feet or two and a half long, with an eye in the middle for the helve, the ſhank of one half is made flat, croſsways to the eye, and the end axe-ſhaped; the other half made rounding, and the end piked; and thus it may be uſed occaſionally both in picking, ſtocking, and cutting; ſold at the ironmongers, and readily made by moſt common ſmiths.

Garden Hammers.

A HAMMER is always uſeful in many occaſions both in a kitchen garden and others, if only in mending ſeveral utenſils occaſionally, as garden frames, wheel-barrows, eſpalier rails, making or mending eſpalier trelliswork in the garden, and in fruit forcing-houſes, &c. and many other uſes; and for which purpoſes any common hammer is eligible.

But

But in kitchen gardens, &c. furniſhed with wall-trees, it is proper to have a proper light nailing hammer for nailing up the branches of the trees, and to draw old nails out of the fruit tree walls, and unnailing the branches of ſeveral ſorts previous to winter pruning, &c. which ſhould be a ſmall ſized clawed hammer neat and light, the fore part neatly rounded with the face perfectly flat, about two thirds of an inch broad, and the hinder part cleft into two claws, for readily drawing out old nails in the walls occaſionally, and fixed in a neat moderately longiſh handle firmly with iron cramps proceeding from both ſides of the head down half way the ſides of the handle, neatly rivetted thereto.

Garden Nails.

NAILS for garden uſe, both in kitchen gardens and other horticultural diſtricts, are neceſſary on many occaſions both in mending many articles in the wood way, and for nailing wall-trees and eſpaliers.

That for general occaſions have a few nails of different ſorts, ſmaller and larger, to ſuit different purpoſes, both in headed nails and brads, from threepenny and ſixpenny, to ten and twentypenny ſizes, having them in a convenient nail-box, furniſhed alſo with gimblets, brad awls, and a hammer, all for ready uſe when wanted.

And in kitchen gardens and others, furniſhed with wall-trees and eſpaliers, have eligible ſupplies of proper wall nails, ſhortiſh and robuſt, not too ſmall pointed, but thickiſh, that they may readily drive into the bricks of the walls, where of brick work, as well as in the joints between; and for eſpalier fruit trees may have a more ſlender and finer pointed ſort for nailing the principal branches or others to the main rails of the trellis of the eſpaliers inſtead of tying; all which ſorts of nails are ſold at the ironmongers by the thouſand, or large quantities by weight, which come conſiderably cheaper.

Shreds for nailing Wall-trees in the Kitchen Gardens, &c.

SHREDS for wall-tree nailing, &c. in the kitchen garden, or whereſoever wall-trees are ſituated, ſhould be prin-

cipally of woollen cloth for general uſe; and for ſome particular ſtrong purpoſes in nailing up large branches, may have ſhreds of ſtrong pliable neats leather, or pieces of old hat; but leather is improper for any general nailing, as being apt to ſhrink and bind the ſhoots, &c. too tight and cramp their growth, &c.

Therefore the beſt and moſt readily obtained ſhreds for general nailing of all ſorts of wall-trees and eſpaliers, is the liſting of broad cloth, and as each liſt will readily rend longitudinally down the middle into proper moderate widths of half an inch, or little more, better than broad clumſy ſhreds, which both in ſhort jointed ſhoots often unavoidably cover ſome of the eyes or buds, and appear unſightly; and when thus ſlit in half, can be readily cut or clipped into regular lengths of from two to three inches, for general nailing, or longer for particular occaſions in larger ſhoots and branches, cutting the ends of each ſquare, and never too long, as it looks ſlovenly in nailing to ſee irregular and long dangling ends of the ſhreds hanging down; and in nailing it is proper to have both ends even together, to have a neat workman like appearance; and if in winter-nailing of long ſhoots or branches, requiring nailing in ſeveral parts, it is proper, where convenient, to have the ends of the ſhreds moſtly placed alternately upward and downward to the under and upper ſide of the branch, or to the right and left, according to its poſition, either horizontally or upright, which will more effectually fix them in a ſtraight extenſion, and look neater than when nailed ſeveral together on one ſide.

But in want of plenty of liſt ſhreds, thoſe of any kind of new or old woollen cloth will anſwer the purpoſe, cut into regular breadths and lengths, as above.

The liſting and other ſhreds may generally be obtained of the taylors, either *gratis*, to families for whom they do buſineſs, or by purchaſe; alſo at the piece brokers, or dealers in remnants of cloth, as in London, &c. and who have generally large quantities of liſting, ſold at from a farthing to a halfpenny or a penny a yard, according to quality, coarſe or fine, narrow or wide, colour, &c. ſcarlet liſting being dearer than any other.

Hand-ſaws, uſeful on ſeveral Occaſions.

HAND-SAWS will be uſeful in many purpoſes in the kitchen garden, and other diviſions of gardening, ſuch as in ſawing any kind of wood materials in temporary repairing frames, wheel barrows, paling fences, rails, &c. immediately wanted, and for cutting poles, ſtakes, &c. to any particular lengths for different purpoſes required, poſts and rails for eſpalier trellis work, and ſeveral other ſimilar occaſions; likewiſe in kitchen gardens and others, where there are different orders of fruit trees, a ſaw will be uſeful occaſionally in winter pruning, in lopping or cutting off caſual large irregular arms, and croſs-placed and ſuperabundant boughs in ſtandard trees, large decayed branches, and thick old ſtumps, &c. as alſo in wall and eſpalier trees, a ſmall ſaw is uſeful occaſionally in cutting out any improper or decayed large main branches, neceſſary to diſplace, and that are too large and ſtubborn for amputation with a knife or chiſſel; or to ſaw off large old hard ſtumps, &c.

Likewiſe in any plantations of large ſtandard foreſt trees and others, requiring occaſional pruning among the large limbs and boughs, to regulate the head in ſome moderate degree, a ſaw will be moſt uſeful in expeditiouſly performing that work, ſuch as cutting off large too low ſpreading branches, reducing very long irregularly extended arms, or any large irregular overhanging boughs above, decayed limbs, &c.

Thus as ſaws are uſeful in all the above and ſeveral other neceſſary occaſions in kitchen gardens, fruit gardens, pleaſure grounds, &c. it is eligible in conſiderable premiſes to have two or three different ſizes; a common middling ſaw for any common ſawing, and for cutting off large boughs of trees; a ſmaller one, narrowing at the extremity, for any lighter occaſions, and to uſe, as required, in cutting off any large old or worn out principal branches in ſtandard fruit-trees, wall-trees, and eſpaliers, the narrower part admitting of being introduced between ſmall clefts and forks, where neceſſary; and a ſmall narrow ſaw chiefly to uſe in wall-tree and eſpalier pruning in winter, to introduce

between narrow forks and cloſely placed branches, when needful, in cutting out hard knotty or decayed parts too ſtubborn to cut with the knife.

Obſerve generally in uſing the ſaw in tree pruning occaſionally, as above, to cut moſtly in a ſloping manner, and as ſmooth as poſſible, to ſhoot off the wet more effectually, that it may not lodge to decay the wood in and near the cut part; and in ſawing off large boughs in ſtandard trees, cut firſt in the under ſide, that when cut through above, it may not ſplit off below lower than intended.

Chiſſels of different Sorts.

A CHISSEL is uſeful both in kitchen gardens and other diſtricts, where there are fruit-trees, &c. to uſe occaſionally in the winter pruning, in cutting off to the bottom any large old ſtumps and large worn-out ſpurs, and branches, &c. too large and hard for the pruning knife, placing the edge of the chiſſel to the under ſide at the baſe of the part to be cut off, and ſtrike it upwards with a mallet in a clean ſmooth cut.

For the above purpoſes, have a common ſhort chiſſel, an inch and a half to two inches wide at the edge end, fixed in a ſhort thick handle.

But ſometimes in large foreſt-tree plantations, a large ſtrong broad chiſſel is uſed, fixed in a long ſtrong handle, ſix or eight to ten or fifteen feet length, or more, employed in trimming up the ſtems of large high trees in winter from ſlender under branches; one man holding the chiſſel to the under ſide of the branches near the trunk, another ſtrikes the lower end of the handle with a mall or large long mallet, and thus cuts the branches clean through, proceeding from branch to branch; often practiſed in plantations of large pine and fir-trees, and others occaſionally.

A ſmall hand chiſſel is alſo neceſſary in ſome kinds of grafting, particularly cleft grafting, both to cleave the top of large ſtocks about two inches, by ſtriking it down with a mallet, for the inſertion of the graft in the cleft part, and afterwards to place into the ſide of the ſtock in the part cleft, to keep it open till the graft is introduced above, then drawn out, both ſides then cloſe upon the inſerted part of the graft or cion.

Mallet,

Mallet, uſeful on ſeveral Occaſions.

MALLET is uſeful on different occaſions both in a kitchen garden and other diviſions, both a larger ore with a thick ſquare head, fixed in a ſhort handle, uſeful in driving ſtakes for the ſupport of ſome tall growing or branchy ſeed ſtalks of plants, from which you intend ſaving ſeed, eſpecially ſuch as are liable to be broken down by wind and wet; as alſo for driving down ſtakes for eſpalier fruit trees, and for the ſupport of new planted tall ſtandards, both of fruit trees and others, in any garden or outward plantation; and ſeveral other occaſions in gardening.

Likewiſe a ſmaller light hand-mallet to uſe occaſionally with a chiſſel in cutting off large branches and old ſtumps in wall and other fruit trees.

Alſo a ſmaller round mallet in one piece, to uſe in cleft grafting, in ſtriking the grafting chiſſel into the head of the ſtock, to cleave it for the reception of the graft.

And for trimming up ſide branches of large foreſt trees with a long chiſſel, deſcribed above, a large-headed mallet, fixed on a long handle, is uſed for that purpoſe, one man holding the chiſſel to the branch, while another ſtrikes the lower end upward with the mallet.

Hatchets, &c. proper for ſeveral Works.

HATCHETS. A ſmall hand one will be uſeful for ſeveral purpoſes in the kitchen ground and other garden diſtricts, and tree plantations; ſometimes in chopping and forming neceſſary requiſites in wood materials for immediate occaſions, in repairing ſeveral articles in that way, as garden frames, wheel-barrows, fences, poſt and rail works, &c. and for cutting and pointing pegs, ſtakes, poles, &c. for different purpoſes; ſtakes, rails, poſts for eſpalier trees, ſtakes for ſupporting tall new planted ſtandard trees; alſo in driving down ſtakes occaſionally with the head inſtead of a mallet, cutting and pointing ſtrong ſtakes for various plants requiring ſupport in the different garden diſtricts, pea ſticks, and for runner kidney beans, and for ſeveral other ſimilar

uſes; likewiſe in pruning up lower ill-growing branches of large ſtandard trees in gardens and plantations, and lopping irregular and ſuperabundant boughs above, and cutting out dead wood, ſide ſtem branches, when required to have clean ſtraight ſtems, and various other lopping work: as alſo in thinning and cutting down any underwood growth in out-premiſes, lopping the heads of pollard ſtandards in hedge-rows, &c. once in ſeveral years, to obtain the loppings for different uſes, and fire-wood; and for chopping up any kind of loppings of trees, hedges, or underwood, for faggotting, or to ſtack up for fuel.

But in extenſive gardening and plantations, a ſmaller and a larger hatchet would be convenient for lighter or heavier occaſions, in winter trimming, lopping, thinning, and cutting down ſmaller or larger growths: a ſmall light hand hatchet is proper for cutting over-handed, or as required, and is moſt handy and ready in moſt operations in ſtandard tree trimming over or under; and for particular ſtronger lopping or cutting down, a larger heavier one, ax-form, will be convenient, or a large one alſo in a long handle for two-handed work in cutting large lower arms, or felling occaſionally.

Hand Bills for various cutting Work.

HAND BILLS are very uſeful in moſt gardens in cutting and trimming up ſtraggling boughs, pruning up ſide ſtem branches of large trees, and irregular branches above of moderate growth, lopping any rough outward hedge work, plaſhing old hedges, where grown up tall and naked or open below, in which gaſhing the ſtems near the bottom, then laying them down horizontally between others left upright for growing ſtakes, afterwards trimming the ſides regular, and the top even all an equal height; alſo for lopping the heads of pollard ſtandards, and any kind of underwood, cutting ſtakes and poles for various uſes in gardens, cutting and preparing pea-ſticks, &c. and expeditiouſly cutting any loppings and bruſhwood for faggots, or to ſtack up for firing; and in ſeveral other occaſions in trimming, cutting, and chopping.

Theſe

These hand bills are made differently both in form and size, some almost straight-bladed, or curved a little inward at the point; and some have the edge a little convexed; others are made with the point hooked, both to use in occasional trimming up slighter work in pliant branches and spray wood, and the hooked part to assist in drawing off or gathering together the loppings, particularly in hedging-work and faggotting; but for most garden business have a light, neat, moderate-sized bill, the blade middling in breadth and length, with the extremity but slightly and gradually turned inward, in the moderate hooked order, and fixed on a shortish, light, single handed handle; or some have also a small projecting cutter at the back, about three or four inches long, to use on particular occasions.

But different sorts may be had at most of the ironmongers shops, larger or smaller, as may be required.

And in their general use may be employed both in cutting and chopping larger work, and occasionally in trimming up pliant shoots and branches in hedge-work, trees, &c. by clean upward strokes, or sometimes sideways or downward, as may be most convenient.

A HEDGE BILL, is similar to that above mentioned, being generally of a larger, stronger size, than a common garden hand-bill, hooked at the extremity, and sometimes with a projecting cutter at the back; used commonly by hedgers in trimming up, lopping, and plashing field hedges where required, cutting and lopping any underwood work, pollards, &c. and for cutting faggotting wood; and used in making any dead hedge work in field fences, &c.

A TRIMMING HOOK, fixed in a long handle, is useful in trimming up any high work, either in hedges, or over-hanging loose branches in plantations, shrubberies, wood walks, &c. very convenient for expeditiously cutting up the sides of any rough hedge-work, and several other occasions of that nature: the blade should be narrow, about a foot long, and a little gradually hooked at the end, and fixed on a long handle, three, four, or five, to six or eight feet in length, to use with one or both hands occasionally, and with which may

quickly run over any light trimming work required as above; or if two ſizes, one fixed on a four, five, or ſix feet handle, another in a longer handle of eight or ten feet, they will be more convenient in lower or moderately high and more lofty cutting, both in any large hedge-work and light lopping, and trimming up ſtraggling, irregular, projecting, or caſual overſpreading ſlender branches in foreſt or ornamental trees, &c. contiguous to walks, lawns, &c. where it may be thought expedient to reduce any incommodious irregularities, or diſorderly pliant growths, that will readily yield to a clean ſtroke of the trimming hook upward or downward, &c.

Generally in uſing the above, the work ſhould be performed moſtly by ſmart, upward ſtrokes, or occaſionally ſideways, or a clean downward cut through at once.

Garden Shears for clipping Hedges, &c.

GARDEN SHEARS, for clipping or trimming hedges and edgings, are neceſſary both in kitchen gardens, and other garden departments, where there is any ſort of hedges, either in outward fences or internal diviſions, and that are required to grow cloſe, in neat, regular order; alſo where there is box or thrift, &c. in edgings.

And for which purpoſes, common large or ſmaller garden ſhears are eligible; and that to have the hedges cloſe and neat, they ſhould be clipped every year, principally the latter end of ſummer, or in autumn, after they have finiſhed the principal ſummer's growth, if only one clipping is intended; but to have principal hedges in the moſt neat order all ſummer, &c. two clippings will be eligible, the firſt generally about Midſummer, or ſoon after; and as they will ſhoot again till the middle or end of Auguſt, then give the ſecond final clipping for the ſeaſon; or if, in ſome ſorts, the clipping is omitted in ſummer, it may be effected in winter, particularly moſt of the deciduous hedges; but, evergreens generally only in ſummer, as a winter cutting, by admitting the froſt, would occaſion them to change of a diſagreeable ruſty hue; and box

edgings

edgings, &c. may be cut any time in ſummer; or to have them perfectly neat, give a clipping in May or June, and a ſecond in Auguſt or September; after which, they will remain cloſe and neat all winter, till next ſummer; but thrift edgings ſhould be clipped principally after they have done flowering in June or July, then trim off the decayed flower-ſtalks, and cut in any irregularities of the ſides with the ſhears; or when the ſides are very irregular or widely ſpreading, they may be clipped in even, at any time in the ſpring, ſummer, or autumn, as may be convenient.

For the above occaſions, garden ſhears are of different ſizes; of which, it is proper for ſtrong hedge-work to have thoſe of the common large ſorts, and which may alſo ſuit for any general clipping, though for light work, in fine clipping in cloſe hedges, and for clipping of edgings, ſmall or middle-ſize light ſhears may be more handy and convenient for theſe occaſions.

In the ancient ſtyle of gardening, when lofty elm, beech, and other high hedge-work prevailed, ſometimes ſpring or ballance ſhears on long poles, were uſed in the ſide clipping, the ſhears being fixed at the top of the pole or handle, a little ſlanting or horizontal, having a ſmall curved iron ſhank projecting behind, at the baſe of the under-blade of the ſhears, and from the end of this ſhank a ſtrong line is ſuſpended, conducted through ſmall ſtaples fixed in the pole, and the ſhears being contrived to open, either by means of a ſpring behind, or a balance knob of iron forged to the back, towards the end of the lower blade of the ſhears, heavy enough to weigh inſtantly down, to open after each ſtroke in clipping; and in uſing either of which, the clipper, elevating the pole and ſhears, pulling the line, &c. ſmartly, performs the clipping, the ſhears readily opening as above, after each cut; that to have theſe ſhears convenient to clip lower and higher in an advancing order, the pole or handle is made in different lengths, five or ſix to eight feet, made to fit in each other in a ſpliced manner, by means of iron ſockets at the ends; ſo adding a length at a time, according as

the clipping advances upwards, and is ſometimes uſed to the height of twenty or thirty to forty feet or more.

However, theſe kinds of long ſhears are both incommodious, tireſome to the clipper, and make very ſlow progreſs in clipping; and in lieu of which, in lofty hedge-work, a high ſtage machine, in different ſtages or platforms one above another, for the men to ſtand on, either to clip with common ſhears, or to cut with trimming hooks, and the whole to move along upon wheels, is more commonly uſed, being conſiderably more convenient, expeditious, and effectual, than the pole-ſhears clipping.

Theſe machine-ſtages are from twenty or thirty to forty feet high, or more; conſtructed with four long, corner poles, fixed in a ſtrong bottom frame, eight feet long by four or five wide, furniſhed with four low wheels, the upright frame-work narrowing gradually upwards to a yard or four feet at top, ſtrongly framed together with croſs bars or quartering, horizontal, ſix or eight feet aſunder, with others obliquely between, interſecting corner-ways, and at every ſix or eight feet height is a platform of ſtrong bars of wood, for the men to ſtand in clipping, &c. with a rail round each platform a yard high, to prevent accidents, one ſide furniſhed with a fixed ladder the whole height, for the men to aſcend and deſcend; and this machine placed ſideways cloſe to the hedge-work, the clippers, with common garden ſhears or trimming-hooks, perform the work one ſtage above another, and according as each length of the machine is clipped, it is moved along upon the wheels.

FRUIT SPRING SHEARS, ſometimes uſed by gentlemen or ladies in their excurſions through the walks, &c. being formed in the blades like common garden ſhears, but quite ſmall, light, and neat, made to work with a ſmall ſpring, as in the ſpring clipping ſhears, and fixed on the end of a long, light pole, with a line or wire ſuſpended from the ſpur or ſhank at the baſe of the ſhears; and the uſe is principally for the proprietors of gardens to take in their hand occaſionally, in their

progreſs

progreſs through the ground, that when deſirous to gather any particular fruit, &c. from ſtandard trees out of reach by hand, it may eaſily be effected with the ſhears without climbing up or pulling down the branches to endanger their breaking.—Are ſold at moſt of the iron-mongers.

EDGING SHEARS, for clipping the edges of graſs walks, lawns, and plats, to trim off the rank, irregular graſs, are of two kinds; one ſort formed ſimilar to a pair of ſheep-ſhears, to work in one hand, and with which, held ſlanting or horizontally, may expeditiouſly run along the graſs edges, cutting clean, even, and cloſe to the firm ground; another ſort is made ſomewhat reſembling garden ſhears, but ſhorter blades, made a little curving upwards, the back of the under blade a little convexed, fixed in two handles a yard long, and in uſing them the convex placed downward, reſting on the ground, one ſide cloſe to the edge of the graſs, run them along forward, cutting the graſs edge as you advance.

Or in default of the above ſorts of edging ſhears, a pair of common garden ſhears will be eligible, uſing the points, and held upright or a little ſlanting, will cut the rough edges along expeditiouſly; or may be performed with an old garden knife, cutting the graſs cloſe between the edge of the knife and thumb.

EDGING IRON, for cutting the ſolid edges of graſs walks, lawns, &c. where irregular, is made creſcent-form like a half moon, or a ſhoemaker's cutting knife, or cheeſe knife, fixed on a ſtraight handle four feet long; and in uſing it, the workman ſtanding on the graſs ground, holding the handle a little ſlanting, the way of the edge of the walk, but the iron upright to the work, he cuts the edge along clean through from the ſurface, a little way in, only ſo far as to take off the uneven and looſe parts into the firm ground, continuing it along in a kind of drawing cut, making the cut upright.

TURFING IRON, or fleaing Spade, a cutting implement for cutting graſs turf, a yard long, a foot wide, and an inch thick, for laying walks, plats, and

lawns, &c. is neceſſary in all principal gardens, ready when any graſs-laying is intended.

It is made with a long, bent, iron handle or ſtem, having, at the extremity of the lower bend, the plate or cutter rounded at the edge, or towards each corner thereof, and at the upper end a ſocket, in which is fixed a ſhort wooden handle ſimilar to that of a ſpade; and with this, after having raced or marked out the turf a foot wide and yard long, the turf is cut about an inch thick, entering it ſide-ways, the length of the turfs, level with the ſurface, reſting the end of the handle and hand againſt the ſide of the knee, the other hand guiding the cutter, thruſt it forward evenly under the turf, cutting clean through the width as above, proceeding by degrees cut and cut longways each turf; and according as the lengths are cut or fleaed, roll them up graſs-ſide inward, as tight as poſſible, for the convenience of carriage, and pile them up in regular heaps, four below to one at top, by tens together.

When deſigned to cut graſs turfs for laying in gardens, the beſt for the purpoſe is that of ſome cloſe fine-ſwarded paſture, common, or other cloſe paſtured grounds, where the graſs is fed ſhort and fine, and is of an even, cloſe, ſmooth ſurface.

The ground, where intended for laying with the turf, being previouſly levelled or made even, made firm by good treading, or rammings where neceſſary, not to ſink irregularly hereafter, and the ſurface then raked ſmooth; obſerving, that if the top ſoil is of any dry, light, rubbiſhy materials, ſeveral inches thick, will be better than that of richer earth, ſo as to have the graſs, when laid, grow cloſe and fine; as if laid immediately in rich ground, is apt to grow rank and coarſe.

In laying the turf, unrol them one at a time on the ground where they are to be layed, making the different turfs join even edge to edge, and make good deficient parts by piecing as you go on; and as ſoon as layed, the whole ſhould be well beaten down even with a heavy wooden beater, to make the ſurface cloſe, firm, and ſmooth; then, or when convenient, well rolled with a large ſtone or iron roller.

Turf

Turf may be layed moſt ſucceſsfully any time in winter and ſpring in open weather; alſo in the autumn ſeaſon, or likewiſe occaſionally in ſummer, taking opportunity of rain falling.

RACER or Rutter, a cutting implement, for racing or marking out the width, length, and thickneſs of graſs turf, previous to its being fleaed or cut with the turfing-iron as above, for laying in gardens to form graſs-walks, lawns, &c. and is a very uſeful and neceſſary tool for that purpoſe.

It is made either with the point end of an old ſcythe, or knife-blade, about five or ſix inches long, for the cutter, fixed in the end of a ſtout handle three or four feet in length, and if thickeſt and a little bending at the lower end where the cutter is contained, it may prove more convenient; and which, being either cleft or thin mortiſed at the butt-end, the cutter is placed therein, the point through to the under ſide, with the edge towards the end, but pointing in a ſlanting direction inward, the way of the handle, projecting about an inch and a half, to cut that depth, and thus fixed in firmly, by rivetting or cramps, wedges, &c. ready for uſe; in which, holding it forward, the cutter introduced into the graſs ground, puſhing it along, will cut it very expeditiouſly, dividing the ſward into proper widths and lengths.

That when occaſion to uſe it, ſtretch a line along the ſurface of the graſs ground where intended to cut the turf to any convenient length, then ſtriking the cutter into the ſward its full depth, race it along forward cloſe to the line, then meaſuring out a foot width, move the line to that mark at each end, race out another cut as above, which makes the proper width for the turfs, proceeding thus in as many widths as neceſſary, and then race them acroſs into yard lengths; the cutter thus dividing and ſeparating the ſward into the proper widths, lengths, and depths, is ready for the turfing-iron, with which, entering it ſideways the lengths, cut them up length and length, rolling them up as you proceed, graſs-ſide inward, as

cloſe

cloſe and firm as poſſible, and pile them ready for carriage to where they are wanted for laying.

BEATER, for beating down new-layed graſs turfs, to render the ſurface even and firm, is a very neceſſary implement for this occaſion, formed generally with a thick, ſquare piece of heavy wooden ſlab, furniſhed with a long handle fixed ſlanting in the middle—for this purpoſe, commonly have a thick piece of oak or elm board, or outſide ſlab, fifteen or eighteen inches long, and a foot at leaſt broad, having a long, ſtrong handle, five or ſix feet in length, fixed ſlanting longways thereof into the middle of the upper ſide, the even ſmooth ſide of the beater being downwards, ſecuring the handle firmly by ſtrong wedging below and above.

This, when any new graſs turf is layed, is uſed for beating down the ſurface ſmartly with heavy ſtrokes all over evenly on every part, but more repeatedly in higheſt places, to bring the whole to an equality, making the edges join cloſe in all parts, as ſcarcely to be viſible; continuing the beating repeatedly till the whole is equally levelled to an even ſurface; afterwards rolled with a heavy ſtone or iron roller; which ſhould be repeated after rain, to render the ſurface as even and ſmooth as poſſible, neat to appearance, and eligible to admit of mowing cloſe and even.

RAMMER, for ramming down looſe dry earth, &c. in any conſiderable body, in filling up or raiſing any new ground work, &c. and clay work in claying the bottom and ſides of baſons, canals, ponds, &c. for water; made either of one thick piece of wood, four inches to half a foot broad at the bottom, and narrowed upwards, four feet long; or of a thick block of wood, the above width below, ſix, eight, to ten or twelve inches length, rounded and narrowing a little upward, and in the middle of the top to fix an upright handle, three or four feet long.

Or for different occaſions in extenſive works, ſome may be ſmaller and larger than the above dimenſions.

In their uſe, they are proper both where any large body of looſe earth is applied in filling up or raiſing particular

ticular compartments, where walks, lawns, or any firm work is neceſſary, or in raiſing ſlopes, terraces, &c. to ram down the earth as it is from time to time applied, to render it ſolid, not to ſink irregularly hereafter: likewiſe in claying for any ſort of water compartments, rammers are of great utility, to ram the clay together by littles as applied, to make it cement cloſely to a compact ſolidity to hold water, and in which middling rammers are preferable, and very careful and diligent ramming is neceſſary, working the clay, as it were, into one ſolid body, ſix, eight, to ten or twelve inches thick at bottom and ſides, leaving no crack, crevice, or cranny, any where, by which the water can eſcape, otherwiſe all the labour would be loſt; and after being well ſmall rammed, may be cloſe ſmoothed over the ſurface with a broader headed rammer or beater.

Rammers are alſo uſeful about a garden and premiſes for occaſionally ramming up poſt holes, in fixing poſts for fences, or other occaſions; and in filling up holes or deep open ſpaces to become firm ground, the rammer ſhould be uſed more or leſs, as may be neceſſary, eſpecially in all dry materials that will bear ramming.

Rollers, for rolling ſometimes after ſowing, and for rolling walks, either gravel or graſs, &c. both in kitchen gardens and all diſtricts of gardening, are always neceſſary in principal grounds; and alſo in extenſive market kitchen grounds wooden rollers are uſed occaſionally, for rolling in many ſorts of ſmall ſeeds in dry light ſoils, after ſowing and raking or harrowing in, to cloſe and ſmooth the ſurface; alſo for rolling in graſs ſeeds for lawns, plats, &c. and conſiſt of three different ſorts, ſtone roller, iron roller, and a wooden roller.

For rolling after ſowing, the wooden rollers only are proper; ſometimes ſmaller ones, to draw by one or two men; and in large field gardens they are large, to draw with horſes.

The ſtone and iron rollers are for rolling all ſorts of gravel, ſand, and other dry walks, to harden and ſmooth the ſurface, alſo to roll graſs-walks and lawns occaſion-

ally for the ſame purpoſe; but for general uſe, in all rolling of the above kind, in walks, lawns, &c. a good iron roller is preferable, for this never wears unequally, as is often the caſe in ſtone rollers, and generally more convenient, eaſier, and effectual in rolling; is made of caſt iron, cylinder-faſhion, and hollow within, of different dimenſions, from half a yard diameter to three or four feet, by from about two feet to a yard and a half long; the very large ones being ſometimes to draw by horſes, for extenſive rolling in conſiderable pleaſure grounds; the hand or man rollers having moſtly iron frames by which to draw them, and theſe, in large rollers being very heavy, are ſometimes balanced in an equilibrium by a large cylinder or ball of lead or iron within the roller, that the perſon drawing the roller bears no weight; and that the iron rollers being conſiderably higher than the ſtone ones in proportion to weight and length, are thereby conſiderably eaſier for men to draw, and conſequently perform the work of rolling more expeditious and effectual, and are not ſo apt to clog in moiſt weather.

In extenſive gardens where there is conſiderable rolling, and large rollers required accordingly, the balance iron rollers are exceedingly convenient, as by having a large balance of caſt iron or lead ſuſpended from, or fixed to the hinder part of the frame, extended a little behind the axis within the body of the roller, balancing the heavy iron frame without, that no weight being borne by the perſon who rolls, as before intimated, his ſtrength is only required in drawing; and the frame thus moſt readily turns over to both or either ſide as required.

However, as ſtone rollers may in many inſtances be more eaſily obtained than iron ones, they may alſo be eligibly uſed in any kind of rolling in gravel, graſs, &c.

Sometimes ſtone rollers are preferred on particular occaſions, ſuch as for rolling ſome ſorts of gravel walks, in dry weather in ſummer, that the white which comes off the ſtone upon the gravel may give the ſurface a more lightſome appearance.

The work of rolling walks and lawns is neceſſary occaſionally at moſt ſeaſons of the year, but more generally

in ſummer, when, in the gravel walks, and others of a ſimilar nature, once or twice a week will be neceſſary, and ſhort graſs walks, lawns, &c. once a week or fortnight; and both ſorts will require occaſional rolling in winter in open dry weather; but obſerve, that graſs rolling with iron or ſtone rollers in winter, ſhould be done principally only occaſionally when the ſurface is perfectly clean and dry, to ſmooth them even and firm, and more frequently rolled in that ſeaſon with a wooden roller, eſpecially when foul with worm caſts, which being previouſly ſcattered by poleing, the earth adheres to the roller, and thereby cleans the ſurface; when, if thought neceſſary, may afterwards ſometimes be rolled with a heavy ſtone or iron roller, to render the ſurface more firm and even, as before remarked.

In ſummer rolling, it is eligible to perform it once or twice a week in gravel walks, and in which, when a long drought, as the gravel will be looſe, it is proper after rain to give a good rolling, to ſettle the ſurface cloſe and firm.

Likewiſe in graſs ground in the mowing ſeaſon, it is proper to give occaſional rolling the day before mowing, to even and ſmooth the ſurface, whereby the graſs will admit of cutting more eaſy, cloſe, and even.

A wooden roller, for rolling graſs walks and lawns, is proper both to clean the ſurface from worm-caſt earth, and to render it ſmooth and more agreeable to ſight; for in ſome ſhort graſs ground the worms caſt up the earth very conſiderably, and greatly deface the walks and lawns; and that by previouſly ſcattering the worm-caſts with a long pliable aſhen pole in dry days, while the ſurface remains a little moiſt, then directly run over with the wooden roller, which will clear up the ſcattered earth, and thereby clean and ſmooth the ſurface of the graſs; obſerving to clear the roller occaſionally from the adhering earth; and which work of poleing, and afterwards rolling with the wooden roller, will be frequently required in winter, and occaſionally in the mowing ſeaſon, the day before the graſs is to be mowed, to clean and even the ſurface, as above; otherwiſe, if foul, or

the ſurface uneven, it will be impoſſible to cut it cloſe, even, and regular.

Likewiſe a wooden roller is often uſed in conſiderable kitchen gardens, eſpecially the market grounds, in ſowing many ſorts of ſmall ſeeds in extenſive compartments in dry weather the ſurface being made moderately fine by proper digging, or in field ground by ploughing and harrowing; the ſeed then ſowed broad-caſt, and raked or light-harrowed in, then evenly rolled by the wooden roller, either ſmaller ones by men, or large by horſes, which moulders and cloſes the earth more effectually over the ſeeds; and likewiſe, by the ſurface being rendered thus more cloſe and even, aſſiſts greatly in dry weather in reſiſting the winds and drought, prevents evaporation of the moiſture, that the earth retains it longer, for the benefit of the ſeed and future young plants.

Rolling, in extenſive grounds, is occaſionally performed by horſe rollers, both in conſiderable pleaſure gardens, in rolling walks, lawns, &c. and in the field, and large kitchen grounds to roll in the ſeed after harrowing; the rollers for the former being both of iron and wood, made high and long, and for the latter, are principally of ſolid wood, of conſiderable length, not high; and in each have ſhafts, like a cart, in which to yoke the horſe, which, in pleaſure ground rolling, ſhould have the feet muffled, or wear leather ſhoes to tie over the hooſs, very broad at bottom, to prevent the walks or lawns being trampled in holes by the weight of the beaſts; but in field work this is not ſo materially neceſſary.

Graſs Pole for ſcattering Worm caſts.

GRASS POLE for poleing ſhort graſs walks and lawns, to break and ſcatter the earthy worm-caſts which often deface the graſs, is neceſſary in all gardens where there are compartments of graſs works, and required to be kept in the neateſt order.

This is a long, taper, pliable young aſhen pole, or of other pliant wood, fifteen feet long or more, ſhot from the root in the woods, either a natural ſeedling, or produced

duced from old bottom ſtools, which, being of a tough pliant nature, is uſeful for the above-mentioned work of ſcattering the worm-caſts, which over-run the ſurface, and ſpoil the beauty of ſhort graſs ground in winter, ſpring, and moiſt ſeaſons; ſhould be uſed in this buſineſs according as the worms caſt up conſiderably, taking opportunity of a dry day, while the earthy worm-caſts are moderately dry, or between ſoft and hard, a little moiſt; ſweeping the pole before you on the ſurface of the graſs, it will break and diſperſe the earthy lumps in ſmall particles; and if the graſs is afterwards gone over with a wooden roller, whilſt the earthy particles remain ſomewhat moiſt, the earth will cling to the roller, and the ſurface thereby be made perfectly clean; obſerving to clean the roller from time to time from the adhering earth.

This work will be occaſionally neceſſary at all ſeaſons, but more frequently in winter and ſpring; alſo in the mowing ſeaſon, when the graſs is foul with worm-caſts, it is proper to perform the above work the day before the mowing, which will be a great advantage in performing that work.

If the top of the above graſs-pole happens to break, and no other ready, it may be ſpliced with a ſtrong ſtraight ſhoot of a willow, or of any other pliant, ſtraight-ſhooting tree, and will anſwer the purpoſe very well.

In places abounding in woods, theſe poles may be eaſily obtained, otherwiſe are ſold at ſome of the nurſeries, and about London, &c. at many of the timber yards.

DAISY POLEING SWORD, for heading down daiſies on ſhort graſs lawns, bowling-greens, &c. where they overſpread conſiderably in ſummer, is often uſeful in extenſive graſs grounds; conſiſts of a long pole, having the blade of a light, two edged old broad ſword fixed in one end; and in May and June, when vaſt quantities of the wild white daiſy ariſe daily and ſpoil the beauty of the green ſurface, or in bowling-greens impede the bowls in playing, that by ſweeping the pole and ſword cloſe on the ſurface, it, cutting both ways, will make expeditious work in heading the daiſies.

BROOMS, or beſoms for ſweeping, are neceſſary in gardens where there are graſs and gravel walks, both to ſweep off the cut graſs, and all looſe litter, fallen leaves, &c. from gravel walks, and all graſs ground; and for which purpoſe, birch brooms are the beſt for general uſe; or for ſweeping fallen leaves, light ſpreading beſoms of beech, &c. alſo are proper.

For general ſweeping graſs and gravel, the common birch brooms, made of the ſmall fine ſpray-wood, and fixed on three or four feet handles, are the proper ſorts; or for wide light ſweeping in lawns and large walks, a ſmaller ſize on a long handle may be eligible for expeditious work, both in broad ſweeping light ſwarths of graſs, by middling two at once, or broad-ſweeping fallen leaves; or for this purpoſe may have flat light beech brooms on long poles, to middle up in wide ſweeps, to make quick riddance in large grounds; however, for general graſs ſweeping, the common birch brooms are uſed, by firſt ſweeping along the middle o the mowed ſwarths in alternate ſtrokes to the right and left, clearing the graſs to each ſide in a row, then ſwept up in heaps.

Garden brooms are alſo ſometimes made of heath or heather, but they are not ſo good as thoſe of birch, and ſoon become ſtubby.

In places where there is plenty of birch, the gardeners often make their own brooms in leiſure time in winter, binding them with ſtrong pliant oſier or other twigs ſplit in two, drawing them ſeveral times round in each place as tight as poſſible; but need not be handled or have the ſticks put in till they are to be uſed, when, if the ſticks are pegged through the part of the broom where they are inſerted, each with a ſmall peg, it will ſecure them from coming off in ſweeping.

Theſe brooms are alſo ſold at the broom makers, at from a ſhilling or fifteen to eighteen pence *per* dozen.

BONNING STAFFS, for levelling in ſtakes to certain heights or levels, as guides or directions for levelling ground accordingly, are neceſſary where new groundwork is occaſionally intended; conſiſting of three nar-

row

row ſlips of deal, four feet long, placing them upright upon ſhort ſtakes driven in the ground at diſtances from one another, and looking over the heads of the bonning ſtaffs; the two extreme ones being pitched at the height or level propoſed, as marked on the ſtakes, the intervening ones are lowered or raiſed to the height required, equal to the other two; ſo notching the ſtakes accordingly exactly where the bottom of the bonning ſtaff touches; ſo proceed from ſtake to ſtake.

They are thus uſed either for horizontal or inclined levelling for any kind of garden compartments, both occaſionally in the general ground, where neceſſary, or any particular compartments in walks, lawns, borders, and other diviſions, &c. alſo for water, and all kinds of ſunk and elevated works.

Theſe bonning ſtaffs are formed of ſlips of inch deal board, three or four inches broad, planed ſmooth; and two of which being cut to exact lengths, about four feet, even at both ends, the third, or ſtandard ſtaff, is half a foot longer, with the upper end generally broader and rounded at top, having the broad part blackened, and then marked with white, either paint or paper, at the exact length of the other two, the mark of white being large enough to be conſpicuous at a diſtance; and thus prepared, and rows of ſhort ſtout ſtakes placed in the ground, by which to mark the height of level, the bonning ſtaffs are employed in levelling by the ſtakes, either horizontally or declining, in any extent of ground expeditiouſly.

To proceed in this buſineſs, ranges of ſhort ſtout ſtakes being driven into the ground, fifteen or twenty feet diſtance, or more; and the height of level being pitched on, either at the beginning, or at the two extreme ſtakes, and marked accordingly; then the longer broad headed bonning ſtaff being placed, the bottom part on the given mark of level in the farthermoſt ſtake, and held upright, the face toward the other end, and one of the ſhorter ſtaffs placed on the neareſt extreme ſtake to the mark of level, as above, and the third ſtaff held up cloſe to the hithermoſt or ſome other intervening ſtake, the perſon reſting it upon the blade of his knife, the edge to the ſtake,

and

and then the bonner looking over the top of the neareſt or firſt ſhort ſtaff to the mark of white on the broad headed or ſtandard one, directs the perſon holding the middle ſtaff to raiſe or lower it till the top correſponds with the other two; he then notches the ſtake with his knife at the mark of level, according to the bottom of the ſtaff; then proceed to the next intervening ſtake in the ſame manner; and ſo on till all thoſe in the range are levelled in; removing onward occaſionally the hithermoſt ſhort ſtaff, if a long diſtance, according as you advance in the levelling in the ſtakes; notching each ſtake as you proceed in bonning; and thus proceed in as many rows of ſtakes, either croſsways or lengthways, &c. and the notches on the fixed ſtakes being all of the level propoſed, the ground is afterwards levelled accordingly by line or eye from ſtake to ſtake, and in the ſpaces between.

Or, beſides the above method of levelling in the ſtakes, by continuing the higheſt or broad headed ſtaff as the fixed ſtandard of the level required, it may be performed occaſionally as the moveable ſtaff higher or lower, by having the firſt, or one of the extreme and intervening ſtakes in the range levelled and marked to the propoſed height, and looking over the heads of the two ſhorter bonning ſtaffs placed hithermoſt on the marked ſtakes, the broad headed one, being at ſome diſtant ſtake, is raiſed or lowered upon the ſtake in the order before obſerved, till it bears exactly with the other two, notching the ſtake accordingly; and ſo proceed to the others.

Level.—An inſtrument for levelling any compartment in a horizontal or dead level, and is very neceſſary about large grounds, where new works are occaſionally carried on, or any alterations, or any kind of water-works in particular, or garden walls, &c. to be built; in all of which this implement is proper for giving the determinate level intended, or that which is moſt neceſſary, according as the ſituation admits.

There are different ſorts of garden levels, ſuch as horizontal plumb levels and water levels; but the moſt common for general uſe, is a long horizontal plumb level,

level, eight or ten feet long, or more, to reach from ſtake to ſtake at that diſtance, having a two or three feet upright in the middle, with a line and leaden plumb ſuſpended from the top; and placing two or more ſtakes in the place intended for levelling, the firſt being marked or driven down to the height of level required; then placing the level from ſtake to ſtake, moving the further end higher or lower on the ſecond ſtake, to mark it level with the firſt, or drive the ſecond ſtake down till the inſtrument diſcovers its level equal with that of the firſt ſtake; then proceed from the ſecond to a third, and the ſame to as many ſtakes as are neceſſary; or after two ſtakes are levelled in to the pitch required, the reſt may be performed by leveling them in by bonning ſtaffs, as directed under that article, eſpecially in any capacious or extenſive ſpaces, in water-works, or foundations of garden walls, where intended or neceſſary to have them built in a horizontal level; and for water, the work of levelling muſt be taken both lengthways, and acroſs, and all round.

Scythes for mowing ſhort Graſs, &c. in Gardens.

A SCYTHE for mowing ſhort graſs is neceſſary in all gardens where there are graſs walks, lawns, and plats of graſs, which ſhould always be kept cut cloſe with an even ſurface, by repeated mowings once a week or fortnight in ſpring, ſummer, and autumn, from March or April till October or November; the ſcythe being properly hung in the bearer or ſnead, ſo as to cut the graſs ſhort, cloſe, and even, without ſcoring the ſurface with the ſtrokes of the ſcythe in mowing, which would both appear very unſightly and diſgraceful to the mower as a workman.

Garden ſcythes for ſhort-graſs mowing are of two ſizes, a ſhorter and a longer; the former being proper for mowing any moderate plats, lawns, walks, or ſmall or narrow compartments of graſs, or may be occaſionally uſed for general mowing in ſmaller or large compartments, as being to ſome mowers more convenient than a long ſcythe, and may be eligible in all common mowing in moderate lawns, plats, &c. as before intimated;

mated; but for conſiderable mowing in capaciouſly extenſive lawns and other graſs diſtricts, long ſcythes may be more applicable, whereby to make greater progreſs in mowing, both by cutting wider ſwarths and forward ſtrokes, and are generally made of the beſt materials; both the ſorts are ſold at the ironmongers, and by many of the nurſerymen and ſeedſmen, at from half a crown to three and ſixpence and five ſhillings, according to the ſize and goodneſs, excluſive of the ſnead or bearer, which is alſo ſold at the ſame places, the proper ſorts of which being thoſe which are bowed, each furniſhed with two ſhort handles to place thereon with iron rings, and fixed with wedges in the proper poſition ſuitable to the mower, and a ſtrong iron ring and wedge for the but end of the ſnead, by which to hang the ſcythe.

As above hinted, the ſcythes being always ſold ſeparate, or unfitted in the bearer, this ſhould generally be done by the mower ſuitable to his hand or peculiar manner, or according to the nature of the graſs for mowing, laying the edge lower or higher, and the point wider or narrower, according as the graſs is ſhorter and finer, or ranker and coarſe; laid with the edge low and the point wide for ſhort fine mowing; and the edge higher and point narrower, or more inward, for mowing rank or coarſe graſs.

To lay or hang the ſcythe in the bearer in a proper poſition for mowing ſhort graſs, &c. it ſhould be taken to a ſmithy, or ſmith's ſhop, and the ſhank or heel-hook heated red hot, then placed in the viſe, bending it gently a little upward or down, to lay the edge more or leſs to the ground, to cut cloſe and even, alſo turned a little out or inward, wider or narrower, as it may ſeem proper, in order to throw out or in the point leſs or more, to an eligible width to take in a proper ſcope at each ſtroke in mowing, both in the forward cut and in width, without ſcoring the bottom at each cut of the ſcythe; for, if hung too narrow, it both takes in leſs compaſs, making ſmaller riddance or progreſs in the mowing, and more liable to ſcore the ſurface diſagreeably, than when laid out moderately wide; the proper

rule

rule for which is what the mowers call heel and point, or the point one to two or three inches wider for fine ſhort-graſs mowing; that is, the ſcythe, being prepared as above, is placed in the bearer, fixing it with the bottom ring and wedge only ſlightly at firſt for trial, in which ſet it upright againſt a wall, the ſcythe upward, back to the wall, &c. or laid in that order along the level ground; mark where the heel of the ſcythe touches, keeping the lower end of the ſnead or bearer faſt in the ſame place, and moving the upper part with the ſcythe along, bringing the point equal to the heel mark, as above, either touching it, or in a line therewith immediately above, or under, one, two, or three inches, or more, according as it points more or leſs out or in; and if the point comes too much within or over the ſaid mark, lay it wider or narrower accordingly, fixing it ſecurely by means of the heel-ring and wedge, either ſo as the point and heel touch in the ſame place, or an inch under or over, which may be ſuitable to ſome mowers; as at that width it may, by taking a ſmaller ſweep in cutting, be more convenient in mowing coarſe or rank graſs occaſionally; but in fine cloſe-mowed lawns, plats, and walks, &c. the point may be laid out one, two, or three inches, or more, wider than the heel-mark, thereby both to take in a more conſiderable ſcope in mowing, by the point ſtanding more forward, and by which alſo the mower will generally cut more regular and even without leaving any conſiderable marks of the ſtrokes of the ſcythe; and ſhould alſo be hung with the edge low towards the graſs, that it may cut cloſe, level, and even; or when the edge inclines too much to the ground, liable to cut in conſiderably, raiſe it more or leſs by a wedge or wedges of thick leather under the ſhoulder of the heel hook; the whole at laſt made exceedingly faſt by the bottom iron ring and wedge before mentioned.

But generally in new ſcythes, before they are finally fixed, they require a little grinding on a grind-ſtone, to thin and temper the edge equally, to admit of whetting more effectually with a rubber or ſcythe ſtone, to have a fine cutting edge in the work of mowing; as

likewiſe, ſcythes after being worn ſome time and the edge become thick, they will alſo require grinding occaſionally.

And, previous to the buſineſs of mowing, ſhould be furniſhed with proper rubbers or whet-ſtones, in order for whetting or ſharpening the ſcythe, both at firſt ſetting in, and afterwards occaſionally, as the edge blunts, [See *Rubbers* below]; and generally a leather pouch in which to carry the rubber, tied round the mower, ready as wanted for whetting as he advances in the mowing; as alſo a large woollen rag or cloth, with which to wipe the ſcythe clean and dry, previous to each whetting; otherwiſe the ſtone would glaze and not make a proper impreſſion in whetting or ſharpening.

The work of mowing ſhort graſs in lawns, walks, &c. is required principally in ſpring, ſummer, and autumn, as formerly obſerved; is generally performed early in dewy mornings while the graſs remains wet with the dew, or immediately after rain; otherwiſe, if dry, the mowing cannot be done with proper effect, ſo as to cut cloſe and regular, or with any tolerable expedition.

In proceeding to the mowing, having a proper whet-ſtone, previouſly give the ſcythe a good whetting to a keen edge; and in the mowing, if in a lawn or plat, or other wide compartment of ſhort graſs ground, generally begin at the right-hand ſide to cut towards the ſtanding graſs, proceeding with a ſteady even ſtroke, keeping the point of the ſcythe rather outwardly or forward, bringing it round in a gradual ſweep, gathering the cut graſs at each ſtroke round to the left ſide of the ſwarth in a row, drawn a little in clear of the next ſwarth; and when mowed to the end, it is generally eligible, in cloſe fine graſs, to mow back again directly in the ſame ſwarth contraryways to the firſt mowing, lightly, to take out all marks of the ſcythe and other irregularities occurring in the firſt cut, and thereby have an even ſmooth ſurface; always keeping the ſcythe to a good edge by repeated whetting or ſharpening with the rub-ſtone as the edge blunts, in which draw the rubber with a clean even ſtroke,

not bearing too much or hard on the edge to chiſſel it, in which you can neither ſharpen it effectually for any continuance, nor be able to cut cloſe in a clean neat manner.

As ſoon as done mowing, rake and ſweep up the mowed graſs very clean into heaps, by firſt middling along each ſwarth lengthways, with the broom or beſom extended forward, ſweeping the graſs to the right and left in alternate ſtrokes into rows on each ſide; then ſweep up the rows, or firſt rake off the roughest part thereof, and then ſwept up clean into heaps, as aforeſaid, and carry it off in wheel-barrows or large baſkets, &c.

Scythes are alſo uſeful in and about gardens for other occaſions beſides that of ſhort graſs mowing, and mowing long graſs occaſionally, ſuch as ſometimes in cutting down large rank weeds, where run up too conſiderably for hoeing; or alſo in any outſide premiſes contiguous to gardens, as ſides of banks, hedges, ditches, &c. where large weeds have run up conſiderably in ſummer, may be expeditiouſly mowed down with the ſcythe; and in large market kitchen grounds a ſcythe is occaſionally uſed; ſuch as ſometimes in conſiderable plantations of aſparagus, in cutting down the decayed ſtalks or haulm in autumn; likewiſe in mowing down horſe-radiſh leaves in that ſeaſon; alſo ſometimes to gather large quantities of parſley for market, it is mowed up for the greater expedition; and in cutting down the rank grown leaves of ſtrawberries after done bearing in autumn; or occaſionally where large quantities of celery are pricked out for late planting, and that is grown very rank before it can be planted out, is ſometimes mowed down, to ſhoot out again in young leaves from the heart in a proper growth or tranſplanting in the ſeaſon required; and a ſcythe is alſo uſeful on ſome other occaſions.

Scythe RUBBERS or WHET STONES, for ſharpening or whetting ſcythes, are neceſſary in all gardens where there are graſs compartments in lawns, walks, &c. for mowing, are made of ſoftiſh white freeſtone, ſome rough, others moulded of a fine grit and even ſmooth

ſurface, and which are preferable to the others; are generally made ſquare, nine or ten inches to a foot long, and ſold at the iron-mongers, ſtone-maſons, and grindery-ware ſhops, alſo by many of the nurſerymen, &c. at from twopence to a groat or ſixpence each, according to the ſorts and ſizes, and of which, from one or two to three or four may be required for each mower, according to the extent of graſs ground for mowing, as beſides wearing, they are liable to break in whetting; and for which the mower ſhould have a leather caſe, open at both ends, in which to carry his ſtone, tying it round his waiſt, the ſtone before or behind, ready for uſe when the ſcythe wants whetting, and have alſo a woollen ſcythe rag, with which to wipe the ſcythe clean and dry, previous to each whet, as explained under the article *Scythe*.

THERMOMETER. A mathematical and philoſophical inſtrument, for ſhewing the different degrees of heat, and proper to have in hot-houſes, fruit forcing-houſes, &c. and other glaſſiaries worked by fire heat, as a guide whereby to determine and regulate the degree of heat neceſſary in theſe apartments.

It conſiſts of a narrow plane frame of wood, about two feet long, and four or five inches wide, having a hollow glaſs tube extending lengthways the middle, furniſhed with a globe at the lower end containing a liquid ſpirit, and which, according to the degree of heat, riſes in the tube more or leſs, the ſeveral degrees of heat being marked on the frame; the higheſt of which, for hot-houſe plants, being marked *ananas*, i. e. pine apple, and the fire heat in the hot-houſe to be regulated accordingly; the thermometer diſcovering the proper degree by the above ſtandard mark *ananas*, and to which the general heat ſhould be ſupported, or within five degrees over or under; and for grape forcing-houſes almoſt the ſame degree of heat will be eligible, but lower for peach-houſes, &c.

This neceſſary inſtrument is moſt uſeful principally in winter during the fire-heat ſeaſon, from October or November till May; ſhould be ſuſpended about the middle of the hot-houſe, &c. the back placed outward,

ward, the front from the ſun, to be affected only principally by the heat of the internal air; for if the ſun ſhone immediately on the glaſs tube, it would raiſe the ſpirit conſiderably higher than the general internal heat would occaſion, and prove a falſe guide.

So that the principal uſe of this thermometer being to give a neceſſary intimation of the requiſite degree of heat, both in fire heat only, and of that and bark-bed heat together, as in pineries, &c. that in either, or both, the fires muſt neither be too ſlight nor violent, but of ſufficient moderate regular ſtrength to warm the internal air in a continued competent degree, eligible to ſupport it to the above-mentioned ſtandard of heat *ananas*; as leſs than that in common hot-houſes for pines, &c. would ſtarve the plants, and if much more, would render them weak, tender, and ſickly; and in forcing houſes for forwarding hardy fruits and plants, the heat ſhould never exceed the above, and if leſs, it will not be attended with any diſagreeable conſequence, as explained in the culture of the different diſtricts.

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